Date 06/07/08

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 99, No. 7 CHICAGO, ILLINOIS AUGUST 13, 1932

PHYSICAL THERAPY IN DERMATOLOGY: A BRIEF GENERAL OUTLINE

CHAIRMAN'S ADDRESS

GEORGE M. MACKEE, M.D.
NEW YORK

The specialty of dermatology has grown increasingly comprehensive during the past three decades. In addition to the clinical skill peculiar to dermatology, the successful practice of the specialty requires a knowledge of the basic medical sciences, practical experience in general medicine and surgery and clinical laboratory methods and a training in physical therapy. Ability to do experimental and laboratory research and ability to apply to clinical problems the various diagnostic and therapeutic methods make the thoroughly trained modern dermatologist more self-reliant than were his predecessors.

Physical therapy has been an important factor in the evolution of practical dermatology. It has helped to broaden the field. For many years physical therapy enabled the dermatologist to obtain therapeutic results that could be obtained in no other way. This statement is also applicable to modern dermatology but to a lesser degree. Increased knowledge relative to the etiology and therapeutic requirements of many dermatoses has made it possible to lean less heavily on the various physical therapeutic methods. This fact is evidence of progress, and with such progress the specialty becomes more comprehensive. Certain aspects of dermatologic physical therapy will become less important in the future, but it seems safe to predict that physical therapy will continue to be of great value in dermatologic practice into the remote future.

While the various physical therapeutic methods are used with skill and excellent judgment by the majority of American dermatologists, they are injudiciously and improperly employed by some. Such conduct is inimical to the best interests of both dermatology and physical therapy. Physicians who are discrediting physical therapy fall into several classes. Some treat cutaneous lesions without much knowledge of either dermatology or physical therapy. Others have received adequate training in physical therapy, but treat cutaneous diseases without dermatologic supervision. The efforts of such physicians frequently produce undesirable results, and from such sources emanate inaccurate and misleading statements. Among the dermatologists are those who attempt physical therapy without adequate training in its application. Naturally the best results cannot be obtained in this manner. There are others who have acquired technical skill but whose training in dermatology and general medicine has not been sufficient for therapeutic resourcefulness. These physicians are likely to use physical therapy as a path of least resistance to the exclusion of conventional therapy. Finally, there are those who have both technical skill and general dermatologic ability, but, being incapable of guidance, they acquire the faculty of accurate judgment only by experience.

Many of these faults can be remedied in time. In the past it has been difficult for dermatologists to acquire suitable training in physical therapy. In many instances their elementary knowledge was obtained from manufacturers of physical therapy apparatus, itinerant lecturers who were not sponsored by altruistic medical bodies, and books that failed to receive recognition by outstanding members of the two specialties.

Many physicians who specialized in general physical therapy in the past were not fitted by education or temperament for the task of placing the specialty on a sound scientific basis. The various physical therapeutic methods were injuriously exploited by these physicians and by manufacturers of physical therapy apparatus. The specialty was in disrepute. It did not offer an attractive field for young physicians of scientific mind. There were, nevertheless, in this field many scientific workers whose accomplishments were epochal, but such advances were not universally recognized until the World War, when physical therapy received a great impetus. Since then the scientific advancement of the specialty has been rapid, and there is less tendency to glance askance at it.

During the past few years several practical steps have been taken for the purpose of enhancing the standing of the specialty, and to safeguard the medical and lay public against undesirable exploitation. The Council on Physical Therapy of the American Medical Association was formed six years ago. This council is gradually separating the good from the bad in physical therapy. Through its educational articles it has provided the medical profession with reliable information regarding physics, biology, chemistry and physiology, as related to physical therapy. These articles also contain an evaluation of clinical results. They have been published in book form by the American Medical Association and are now available to all physicians. The Council on Physical Therapy functions in much the same manner as does its older brother, the Council on Pharmacy and Chemistry. It carefully considers all physical therapy devices submitted to it. Acceptance or rejection is based not only on the usefulness and quality of the device, but on the character of the advertising propaganda. In time both the manufacturer and the physician will realize that approval of a device by the Council means protection for both.

Read before the Section on Dermatology and Syphilology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

A comprehensive, authoritative, much-needed practical work on physical therapy for practitioners of general medicine has been prepared and is now in press. While this work is not officially sponsored by the Council, it was inspired by individual members of the Council, most of whom are independent contributors.

American dermatologists have just created an American Board of Dermatology and Syphilology, patterned after similar boards that have done so much for ophthalmology, gynecology and other specialties. The duty of this board will be to certify to the ability, probity and ethics of dermatologists after careful examination. The examination will include, of course, dermatologic physical therapy. It is probable that in time patients will for the most part consult only those dermatologists who have been certified by the board. It is to be hoped that when the time is propitious the members of the specialty of physical therapy will establish a certifying board for their own protection and for the protection of the lay public.

It is still difficult to obtain a comprehensive training in general physical therapy or even in dermatologic physical therapy, especially without visiting several or many medical centers. Every long term postgraduate course in practical dermatology should provide adequate training in dermatologic physical therapy. Such courses will do for the present, but much more is required for the future. In the premedical course it would seem advisable to devote more time to physics in terms of biologic reactions. The medical course might well include at least the fundamentals of physical therapy. The larger hospitals should have a physical therapy department in which the two-year rotating intern should spend several months. A physician who has received this elementary training is prepared to gain the most from postgraduate courses that include physical therapy.

It appears to be the general impression that physical therapy is synonymous with machine therapy—an entirely erroneous opinion. The most important agents in the general field of physical therapy are massage, rehabilitation, vocational therapy, posture, heat, solar radiation and the like. In dermatology it happens that x-rays are important, and they must be produced by electrical machinery. But even here, many natural physical agents are employed. In fact, it is doubtful if dermatologists have realized how heavily they have leaned on natural physical methods for therapeutic results. These agents include massage, posture, elastic stockings, strapping, exercise, rest in the reclining position, the action of moving air on exposed skin, water in the shape of wet dressings and baths, solar radiation, heat, cold, radium and so on.

There is a controversy as to whether the dermatologist should use physical therapy methods or should refer his patients to a physical therapist, roentgenologist, etc. There has been a similar controversy relative to other diagnostic and therapeutic methods—internal medicine, surgery, clinical laboratory work and so on. In private practice, the dermatologist can be as comprehensive and self-reliant as he desires within the scope of his ability. In institutional work it is more difficult to obtain this privilege. In many institutions the department of dermatology is hardly more than a clearing house. As I am an advocate of comprehensive dermatology, it is my contention that the department of dermatology in an institution should be, as far as is practicable, a self-sustained unit. But I do not advocate that this be accomplished by legislation. The director of the department and his staff must be able to use skilfully the many diagnostic and therapeutic methods necessary in dermatology and with them obtain better diagnostic and therapeutic results and do better research work and teaching than can be accomplished by complete institutional centralization or interdepartmental cooperation. When a larger number of dermatologists have demonstrated this comprehensive ability and have developed executive and organizing capacity, it is possible that there will be more self-sustained dermatologic units.

PHYSICAL THERAPEUTIC METHODS USED IN DERMATOLOGY

There are a number of physical methods used therapeutically in dermatologic practice. These consist of radiation, heat, cold, electricity, massage, posture, strapping, baths and wet dressings.

Radiation.—X-Rays: This agent has been of great practical service to the dermatologist. It is still the most efficacious single remedy in the armamentarium of the dermatologist. About eighty dermatoses are more or less amenable to its action. In some instances the roentgen rays constitute the only remedial agent that will cure or control a disease or give relief from distressing symptoms. In most cases the roentgen rays are used only as an adjuvant.

Injuries caused by x-rays and radium are still too common. Most of them are due to poor judgment rather than faulty technic, and they rarely follow irradiation by well trained dermatologists. With good judgment, diligence and modern technic, unfavorable results should be almost negligible.

There have been two valuable additions to roentgen therapy during recent years. One is the establishment of an international unit of quantity known as the roentgen. The other is the development of ionization dosimeters calibrated in roentgen units for use in routine practice. Unless used by those who understand the possibilities and limitations of these dosimeters, serious errors are likely to result, especially with unfiltered radiation, and they do not obviate the necessity for testing technic by the usual visible effects on human skin. In expert hands it is possible to record the dose in effective wavelengths (quality) and in roentgen units (quantity). As yet there is no universal standard for these dosimeters. Various instruments give different results with unfiltered radiation such as is used in the practice of dermatology. Nevertheless, they are extremely useful for the frequent checking of routine technic. My associates have been engaged for some time in a study of these dosimeters as applied to the technic used by American dermatologists. When the investigation is completed, the results will be published.

Grenz Rays: These are x-rays of a wavelength longer than those heretofore used for therapeutic purposes. They average about 2 angstrom units. These long wavelengths are absorbed largely by the epidermis, especially when thickened; therefore, the maximum effect is superficial. With doses ordinarily used in practice the reaction, while apparently severe, is superficial and usually disappears without subsequent sequelae. However, the beam of radiation is heterogeneous and contains some of the shorter wavelengths. With large doses, especially when repeated, sequelae such as atrophy and telangiectasia have been observed. Grenz rays are less hazardous than are x-rays of the usual wavelength, especially when applied to the deeper tissues. Therefore, they are especially useful for the treatment of diseases such as eczema, psoriasis and lichen planus when situated on the scrotum, scalp and eyelids, and also for the treatment of certain rebellious, circumscribed eruptions in infants and children. Satisfactory results have been obtained with this agent in a number of the dermatoses; but in my opinion, the efficacy of grenz rays is not nearly so great as that of ordinary x-rays. Because of the smallness of the area to which grenz rays can be applied, they are not suitable for the treatment of extensive eruptions.

Radium: In dermatologic practice, radium is used much less frequently than are the roentgen rays. In a given circumscribed cutaneous lesion, approximately the same result can be obtained by the proper application of either agent. There are, of course, exceptions. Beta rays are particularly useful for strawberry marks. Gamma rays have given better results in cavernous angiomas than have x-rays. Radium is more successful in malignant tumors. Radon can be used as implants and for lesions inaccessible to x-rays. But radium is not suitable for extensive lesions and eruptions, and most of the dermatoses seen in routine practice are of this type. The average dermatologist possesses a half-strength glazed radium applicator with which excellent results may be obtained in selected cases. He should, however, realize the limitations of such a small amount of radium and not attempt to cure epidermoid cancer and other equally malignant neoplasms with it, nor should he rent or purchase radon without adequate training in its use.

Ultraviolet Rays: It appears to be the general impression that ultraviolet irradiation is of great value in dermatology. This opinion is based largely on the clinical observations of those who are not dermatologists. Even in dermatology much of the knowledge of the effect of this agent on the various dermatoses is based on the clinical use of heterogeneous radiation without suitable controls. The possibility of spontaneous recovery, coincidence and the effect of air, temperature and visible light have not always been duly considered. There is evidence sufficient to justify the statement that ultraviolet radiation is of value in erysipelas and certain types of cutaneous tuberculosis. It is reasonably well established that ultraviolet rays are useful in adenoma sebaceum and for selected cases of acne vulgaris, pityriasis rosea, psoriasis, telangiectasia and indolent ulcers. There is a difference of opinion relative to the value of ultraviolet radiation in about thirty other dermatoses for which this agent is claimed by some to be therapeutically useful. While admitting occasional good results that appear to be due to ultraviolet radiation, the majority of dermatologists do not consider it to be an important agent in the management of these disorders.

In physics and biology it is an axiom that the effect of irradiation on human tissue is due to that portion of the radiation that is absorbed by the tissue. When employing ultraviolet rays and infra-red radiation, this fact should be kept in mind. While there is a difference of opinion regarding the penetrability of various rays, it is probable that the short wavelengths of the far ultraviolet are absorbed by 0.5 mm. or less of tissue. The longer wavelengths of the near ultraviolet are more penetrating, being absorbed by about 1 mm. of tissue. Visible solar radiation penetrates to a depth of about 5 mm. The short infra-red rays (near infra-red) penetrate to a depth of 20 or 30 mm., while the longer wavelengths of the far infra-red are absorbed by about 3 mm. or less of tissue. From the foregoing statements it is obvious that the far infra-red rays may produce severe burns without effecting the desired therapeutic effect. The maximum bactericidal action of ultraviolet radiation is in the comparatively nonpenetrating short wave range. One might mention many other characteristics, such as the production of erythema, pigmentation, effect on the cutaneous nerves, absorption by the blood, etc., which are characteristic of the various wavelengths. Suffice it to say here, however, that the dermatologist should consider all these features before purchasing ultraviolet and infra-red generators.

The erroneous impression prevails that ultraviolet radiation is harmless. As most dermatologists know, the injudicious use of this agent may cause undesirable systemic reactions; it may be the precipitating cause of lupus erythematosus and herpes simplex. It may change a quiescent inflammatory dermatosis into acute, active eruptions and even dermatitis exfoliativa. Pellagra, hydroa aestivale, sailor's skin, xeroderma pigmentosum and erythema solare perstans are etiologically related to the effect of light. In this connection may be mentioned erythema ab igne, caused by heat, and pernio and other conditions caused by cold.

Light of various colors, orange for instance, has been used in dermatology with results that were not encouraging.

Heat.—Heat therapy is quite widely employed in dermatology by means of conduction, convection, radiation and high-frequency electricity. Originally, heat therapy consisted of the application of heat by hot objects, such as a poultice and hot water. In recent years, radiant heaters have been popular as a source of infra-red radiation. At the moment, medical diathermy is the most popular method of applying heat therapy. In this form of heat therapy, the heat is generated in the tissue instead of being applied to the tissue.

In dermatology, heat therapy is of value for boils in the early stage of evolution. It is at times beneficial for the stasis and congestion accompanying certain chronic inflammatory dermatoses. It may be of some value in the treatment of onychomycosis. Applied as medical diathermy to the spinal region, it is thought by some to be of service in the management of lichen planus and scleroderma. Heat therapy in syphilis applied by means of hot baths, medical diathermy and radiant heaters has not been successful. The short radio waves are penetrating and cause an elevation of body temperature when properly applied. Experimental work is now being conducted with these wavelengths, with results that are at least encouraging.

The actual cautery is not used as much by dermatologists now as in former years, as it has been supplanted to a large extent by surgical diathermy. Heat obtained by focusing the sun's rays is used to some extent for destructive purposes; but the method is not popular.

Cold.—Freezing the skin with ethyl chloride or solid carbon dioxide is successful in some cases of larva migrans. The same method has been used for scabies and dermatophytosis with poor results. Cold compresses are used occasionally to provoke cutaneous reaction in the congested skin in certain chronic dermatoses. Ethyl chloride and solid carbon dioxide are used for the same purpose, especially when the eruption is circumscribed. Solid carbon dioxide is not now so popular as in former years, but it is useful for the destruction of warts, certain nevi and discoid lupus erythematosus. It is now possible to obtain hard blocks of solid carbon dioxide from the confectioner, who uses it for ice cream cartons.

Electricity.—With the exception of medical and surgical diathermy and electrolysis, electrotherapy is not used much in dermatology. Cataphoresis has thus far been of little value. The application of high-frequency sparks by means of a glass vacuum electrode for the production of hyperemia is used to some extent; but the method is of questionable value. The same statement may be made relative to the use of a negative galvanic current to soften scar tissue.

Electrolysis is a valuable therapeutic method, and should be more universally employed. It is useful for the removal of many small benign lesions, and it is the best available method for the permanent removal of superfluous hair. Dermatologists have neglected this aspect of physical therapy, with the result that many patients are compelled to go to cosmetologists and beauty specialists. Instruction in electrolysis should be included in the curriculum of postgraduate courses in clinical dermatology.

Massage, Posture, Etc.—It seems to be the consensus that massage is useful for scleroderma. It appears to be of some value in cases of hyperplastic scar tissue and perhaps for some of the chronic dermatoses. It is used for various types of alopecia.

Rest in the reclining position is necessary for some acute generalized eruptions. Elevation of congested extremities, the wearing of elastic stockings, prescribed exercise and rest and strapping are of value in cases of dermatitis hemostatica and indolent ulcers. Balneotherapy consisting of baths of various kinds, including the permanent bath for pemphigus, is used by nearly all dermatologists. In fact, if balneotherapy includes wet dressings and compresses and water as a vehicle for the application of heat, cold and various chemicals, it is indeed a widely used method.

Diathermy.—Medical diathermy signifies the application of a bipolar high-frequency current for medical purposes. The current is obtained from the primary winding of the high-frequency transformer. This used to be called the d'Arsonval or solenoid current. Its use in dermatology is limited.

Surgical diathermy is the application of a high-frequency current for the purpose of destroying tissue. In dermatology there are three types of high-frequency currents that are used for this purpose. The cutting current is obtained from the primary winding of the high-frequency transformer or inductance. This may be monopolar or bipolar, depending on the construction of the apparatus and the number of turns of the primary winding in the current. It may be damped or undamped. The voltage is low as compared with the other currents. The current cuts like a knife, and there is sufficient coagulation of tissue to seal the lymphatics and the small blood vessels. The electrode is usually a needle or a fine wire loop.

The coagulating current is obtained from the same source and it, too, may be monopolar or bipolar. The active electrode is usually a small needle. This current coagulates tissue to a distance of several or many millimeters in all directions from the needle electrode.

The desiccating current is monopolar and is obtained from the secondary of the high frequency transformer. This was formerly called the resonator or Oudin current, and its application was known as fulguration. The current has a comparatively high voltage and low milliamperage. This current dehydrates, desiccates or mummifies the tissue.

The various forms of surgical diathermy are employed for a variety of cutaneous conditions. With the desiccating current it is possible to dehydrate accurately a tiny lesion of the skin or to destroy a large superficial lesion. Electrodesiccation is used mostly for the destruction of certain nevi, warts, small areas of leukoplakia and many small, superficial benign lesions. Electrocoagulation is used mostly for the destruction of malignant neoplasms. The cutting current is employed to excise both benign and malignant new growths either alone or combined with electrocoagulation, radium and roentgen rays. It is also used with a loop electrode to remove the elevated portion of a large, thick keloid, after which roentgen rays are applied to prevent a recurrence. In selected cases of malignant neoplasms surgical diathermy appears to be superior to scalpel surgery because it seals the lymphatics and blood vessels and because it can be used in locations inaccessible to the scalpel.

Physical measures used for surgical purposes may be included under the general category of physical therapy, but they also belong to surgery. All surgical operations, whether performed with the scalpel or with some physical device, require for uniform success a knowledge of the principles of surgery.

RELATION BETWEEN GASTRIC AND RENAL DISEASES

CLINICAL OBSERVATIONS

JULIUS FRIEDENWALD, M.D.
AND
SAMUEL MORRISON, M.D.
BALTIMORE

Gastro-intestinal symptoms occurring during the course of renal disease are not uncommon. These may be so pronounced that unless an extremely careful investigation is made, erroneous conclusions may easily be drawn, the primary condition remaining entirely unrecognized. This is more especially observed in the incipient stages of certain chronic renal diseases as well as in persons in the later periods of life, complaining of indigestion with urinary symptoms of a comparatively unimportant type, in whom the blood chemistry and functional renal tests reveal the presence of definite renal lesions.

On the other hand, attention has frequently been called to the fact that digestive diseases in themselves may likewise primarily produce disturbances of renal function.

The intimate relation between the kidneys and digestive organs will, to a great extent, easily account for many of these manifestations. Owing to beginning decompensation in the circulatory system, an early enlargement of the liver as well as congestion of other abdominal organs is produced as the result of portal stasis, and in consequence a change in the gastric functions occurs, resulting in the production of digestive symptoms of a more or less severe type. A somewhat similar relation between the kidneys and digestive

---

From the Gastro-Enterological Clinic of the Department of Medicine, University of Maryland.

Read before the Section on Gastro-Enterology and Proctology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

organs through the nerve supply is also recognized. Both are supplied by the vagus and sympathetic nerves, and any disturbance of the kidneys may be reflected through these paths to the gastro-intestinal tract, causing an interference with its functions. The upper portion of the digestive organs receives its sympathetic nerve supply from the splanchnic nerves, from which fibers are distributed to the celiac plexus and ganglion, aorticorenal ganglion and renal plexus and through the celiac ganglion to the superior mesenteric plexus and inferior mesenteric plexus. This intimate relationship may therefore also account for certain digestive symptoms so commonly arising as the result of renal disease. Likewise, as the result, on the one hand, of the absorption of toxic products due to disease of the kidneys or digestive tract there may follow, on the other hand, disturbances of the functions of the gastro-intestinal tract or of the kidneys.

In addition, the anatomic relationship between the kidneys and the abdominal viscera may have an important bearing in this connection. The relation of the anterior surface of the kidneys to the digestive organs varies somewhat on the right from that on the left side, the right being lower than the left, the left, however, being longer. The second portion of the duodenum is in direct contact with the hilus of the right kidney, while the hepatic flexure of the colon is in contact with the lower pole, and at times a part of the small bowel passes over the lower pole. The left kidney, in addition to being in close contact with the spleen, pancreas and suprarenal gland, is also closely related to the left side of the stomach. The descending colon not infrequently also passes over the lower pole of the left kidney, and the jejunum is in relation with its anterior surface.

The pathologic changes occurring in the mucous membrane of the stomach and intestine vary greatly with the character of the renal lesion. In the acute and subacute forms of nephritis with edema or those of the hemorrhagic type including the acute and subacute nephroses, the mucous membrane of the stomach is covered with mucus, while the glands of the stomach and intestines are swollen, irregular and filled with granular disintegrated cells and mucus. In the chronic forms of nephritis with edema, however, the mucous membrane assumes a grayish color and in some areas is intensely reddened. It is swollen, thickened and covered with an adherent tenacious mucus, which is cloudy and occasionally blood-stained. Ecchymotic patches and small hemorrhagic erosions may also be observed. The pyloric area is more markedly involved, though the inflammation may extend throughout the entire mucous membrane. The submucous and muscular coats are at times thickened. The glands of the stomach and intestine are enlarged, sacculated and dilated, the tubules being distorted in many areas, and no longer present their characteristic appearance. The glandular cells become cloudy, granular and infiltrated and finally undergo fatty degeneration. The principal and parietal cells cannot always be differentiated at this stage. Abundant small cell infiltration separates the glands, and extension of connective tissue may be noted passing from the mucosa between the glands. Mucoid transformation of the cells of the tubules is a prominent change, which may extend into the fundus of the glands.

In the chronic types without edema but with hypertension, known ordinarily as chronic interstitial nephritis, there is present usually an inflammatory increase in the interglandular connective tissue of the stomach and intestine, the mucous membrane undergoing a fibrous thickening, especially noted in the intima, resulting finally in the production of an atrophic gastritis. Not infrequently minute ecchymotic areas are observed in the mucosa of the stomach, or superficial ulcers or erosions in both the stomach and the intestine, which may gradually increase in extent. Sloughing ulcers have been observed in the large bowel associated with profuse diarrhea, often of serious form. After a considerable length of time, the inflammatory process may lead to a total destruction of glandular layers, the coats of the stomach undergoing thickening and atrophy and the mucous membrane and glands being replaced by round cells and connective tissue.

As a result of enlargement of the prostate, stricture of the ureter, kidney stone, movable kidney with or without the production of Dietl's crises, chronic infections, pyelitis or pyelonephritis, changes may take place in the stomach and intestine similar to those already described.

In the study of the interrelation of the disturbances of the digestive organs with those of the kidneys, the two following groups will be considered: (1) digestive symptoms occurring in renal disease, and (2) renal disease of gastro-intestinal origin.

DIGESTIVE SYMPTOMS OCCURRING IN RENAL DISEASE

Owing in part to reflex causes, but in a far greater degree to absorption of toxic products which are the result of renal disease, dyspeptic symptoms of more or less severe forms are often found to supervene. Whether this toxic substance is urea, as Elwyn[1] has recently again maintained, or a combination of this with other products is of minor importance in this connection. At first the toxin is accumulated to a slight degree in the blood and, being excreted in small amounts in the gastro-intestinal tract, gives rise to minor digestive upsets, but sooner or later, as the accumulation becomes more excessive, it is excreted to a far greater degree, giving rise to grave symptoms due to a consequent gastro-enteritis or ulceration.

When the toxic substance is excreted into the mouth through the salivary glands, it is decomposed with the formation of ammonia and produces the odor of urine in the breath. This causes a highly disagreeable taste in the mouth and a coated tongue. It is excreted through the gastric glands and then produces an irritation of the mucous membrane with symptoms of nausea, vomiting and anorexia. These symptoms of disturbed digestion in chronic forms of renal disease are often extremely pronounced and frequently overshadow those directly associated with the renal lesion. They necessarily vary according to the character and degree of involvement of the stomach and intestine. The symptoms characteristically observed are loss of appetite, nausea, vomiting, constipation or diarrhea, flatulence and pain following meals. Loss of appetite occurs as an extremely early symptom and may appear before the renal lesion is even suspected. It is sooner or later followed by vomiting after meals and not infrequently in the morning on a fasting stomach. In these instances nausea occurs on awakening and is followed by extreme retching and vomiting of mucus, which is alkaline in reaction, together with an admixture of bile and salivary secretion. Vomiting may follow immediately or occur several hours after meals; when appearing late, the vomitus contains undigested food remains with an admixture of mucus. In the milder types vomiting may be absent, though gastric distress, anorexia and a burning sensation in the abdomen are usually noted. Constipation, which is usually present at the onset, is sooner or later replaced by diarrhea with loss of flesh and anemia. Examination of the blood chemistry at this stage usually reveals a high nitrogen content and not infrequently an increase in creatinine. With improvement in the renal disease the digestive symptoms likewise show evidence of abatement.

---

[1] Elwyn: Am. J. M. Sc. 179: 149, 1930.

As a complication of nephritis, uremia may occur. The symptoms referable to the digestive tract are then largely due to toxic manifestations. The onset of uremia is accompanied by excessive nausea, vomiting, headaches and drowsiness. Food is badly tolerated and usually promptly rejected in an undigested form together with an admixture of mucus and bile. The breath becomes strongly ammoniacal. Obstinate constipation may alternate with excessive diarrhea. The diarrhea is frequently accompanied by pain, and the stools are occasionally blood stained. Urea has been observed in the vomitus, and when the kidneys do not carry off the toxic substances sufficiently, the excess will be eliminated through the gastro-intestinal tract. The stomach and intestine thus assist in this manner in the elimination of toxic products from the blood when these cannot be eliminated through the usual channels. The vomiting and diarrhea occurring in uremia are therefore, in a measure, compensatory mechanisms. Auguste[2] confirmed this observation in five patients affected with chronic nephritis with evidences of uremia and a high nitrogen retention in the blood, in whom a favorable outcome was brought about through duodenal lavage. Although death ensued within several weeks in all his patients, relief from all symptoms, that is, from uremia, headaches and loss of vision, was observed. Hugh Young[3] likewise called attention to the value of the duodenal tube as a means of combating the nausea and vomiting in uremic conditions.

In the acute forms of nephritis the onset may be of a fulminating character, associated with headaches, malaise, nausea .and vomiting, but these symptoms, including edema, usually develop gradually and finally become prominent.

In the chronic forms of nephritis with edema there is usually a secondary anemia, and the edema may include the gastro-intestinal tract, giving rise to fulness, distention, gas, discomfort following meals, nausea, persistent vomiting or constipation, diarrhea and loss of appetite. In this condition there are also present malaise, loss of strength and headaches, the blood pressure remaining normal or even low.

In the chronic forms of nephritis with hypertension or chronic interstitial nephritis, the onset is insidious, the symptoms occurring rather late. The early signs are largely those of fatigue and loss of strength and often weight, followed by headaches, dizziness, loss of appetite, fulness, distention, flatulence, dyspnea and finally symptoms of toxemia, manifested in the form of drowsiness and attacks of nausea and vomiting which become more and more frequent and persistent. Occasionally, abdominal pain, which may become severe and even suggest disease of the gallbladder, appears.

In renal disease associated with infection in the form of pyelitis or chronic pyelonephritis, digestive symptoms occur in the form of anorexia, nausea and vomiting, with pain and tenderness in the region of the kidneys and in the abdomen, not infrequently associated with chills and a rise in temperature. The pain may be localized in the loin, but frequently radiates to the right side of the abdomen.

The gastro-intestinal symptoms occurring as the result of renal ptosis may be insignificant or pronounced. This condition is usually associated with a visceroptosis, and many symptoms may be due to this disease. The most prominent are nausea, vomiting, abdominal pain, loss of weight, weakness, abdominal tenderness and a dragging sensation in the abdomen when the patient is in the erect posture. At times, intense colicky pains associated with Dietl's crises are manifested. In this condition, enlargement of the kidney is noted, and this organ, on palpation, is found to be extremely painful. As the urinary stasis becomes more pronounced, hydronephrosis, pyelitis or pyelonephritis may result, with chills, fever, nausea, vomiting and other digestive symptoms due to pressure.

The digestive symptoms occurring in nephrolithiasis and as the result of ureteral calculus or stricture are usually not pronounced or characteristic unless renal colic is produced. The symptoms ordinarily noted are nausea and vomiting, which may be periodic and persistent, epigastric pain and pressure, abdominal and lumbar pain, eructations, heartburn and constipation. The sudden onset of intense pain in the lumbar region, associated with weakness, nausea, vomiting and signs of shock, together with the urinary findings, points clearly to the presence of renal colic. However, when the symptoms relating to the urinary tract are atypical, the digestive symptoms may become so pronounced as to give rise to the picture of a primary dyspeptic disturbance. At times the constipation associated with this condition may become intense and be accompanied with such extreme abdominal distention as to give rise to the erroneous diagnosis of intestinal obstruction or an acute peritonitis. Cystoscopic and roentgen examinations will ordinarily aid in establishing the correct diagnosis.

In other instances the gastro-intestinal symptoms may be of a less severe but more chronic type, consisting of nausea, abdominal discomfort, pain, eructations and occasional vomiting, while the urinary manifestations may again be so mild in character as to be entirely overlooked. A thorough examination including a urinary investigation will usually point to the correct diagnosis.

Occasionally a stone in the pelvis of the kidney will produce symptoms resembling duodenal ulcer or cholelithiasis, giving rise to pain several hours after meals with signs of hyperacidity or reflex colicky pain in the upper part of the abdomen. Here, too, a thorough investigation will aid in establishing the diagnosis.

In those instances associated with prostatic obstruction, the digestion not infrequently becomes markedly impaired, and nausea, vomiting, eructation, abdominal pain and emaciation become so prominent that the presence of carcinoma of the stomach may be suspected. There are often present marked abdominal distention, oppression, dyspnea, flatulence and diarrhea with intense thirst. The tongue, under these considerations, becomes reddened, dry and furred, and the mucous membrane of the mouth presents a glazed appearance.

The Gastric Secretion in Renal Disease.—Authorities are by no means in accord regarding the changes occurring in the gastric secretion in chronic nephritis.

---

[2] Auguste: Bull. et mém. Soc. méd. d. hôp. de Paris **53**: 1313, 1929.

[3] Young, H. H.: Use of Retained or Inlying Duodenal Tube in Treatment of Gastro-Intestinal Complications in Renal Disease, J. A. M. A. **94**: 1830 (June 7) 1930.

Van Valzah and Nisbet[4] considered hyperacidity common in the early period of the disease with the development of a low acidity as the disease progresses. Biernaki[5] and Jones[6] pointed out that the gastric secretion is greatly diminished, while Zipkin[7] and Krakow[8] found hyperacidity more frequent.

According to our observations, in the early stages of chronic renal disease before the occurrence of edema or uremia slight changes are noted in the gastric secretion; however, hyperacidity is occasionally observed. At a later period following the onset of renal insufficiency there is a reduction in the gastric secretion due largely to a resulting secondary chronic gastritis. During the acute exacerbations of chronic nephritis, hypoacidity or anacidity not uncommonly occur and this is frequently replaced by a normal acidity or even hyperacidity during the period when renal sufficiency is again restored. Free hydrochloric acid is also known to diminish during uremic attacks.

RENAL DISEASE OF GASTRO-INTESTINAL ORIGIN

Occasionally as the result of pyloric or high intestinal obstruction renal disease is known to occur. In this condition tetany may appear and the signs of severe toxemia may be manifested. Brown, Eusterman, Hartman and Rowntree[9] have especially called attention to the renal disturbances noted in many of these cases. The evidence of the toxic injury to the kidneys is demonstrated, according to these observers, by the albuminuria and cylindruria, the functional impairment of the kidneys with increased nonprotein nitrogen, creatinine and urea in the blood and a definite diminution of the phenolsulphonphthalein output. In addition, the clinical and pathologic picture points definitely to a nephritis. As a result of the pyloric or upper intestinal obstruction a toxemia is produced, often leading to an alkalosis of a more or less severe type. Brown and his co-workers described eleven cases of this character exhibiting duodenal intoxication with renal disturbance. The gastric symptoms were mainly nausea and vomiting. Headaches were common. In the chronically obstructed group intermittent crises occurred at intervals of a few days with vomiting of excessive quantities of serous fluids. With the emptying of the stomach great relief was obtained for a time. Not uncommonly in the more pronounced forms, tetany or tetany-like symptoms develop. Due to violent vomiting and the resultant depletion of fluid, symptoms of shock are produced with a fall in blood pressure, weakness, an apparent increase in hemoglobin and finally delirium and cerebral excitement. The urinary secretion is diminished and albumin, casts and even red blood cells are observed. With the development of the toxemia, the blood chemistry reveals, as has already been noted, marked changes. There is a decrease in the blood chlorides and an increase in the carbon dioxide-combining power of the blood, with an increase in the nonprotein nitrogen, urea and creatinine. The phenolsulphonphthalein test reveals a marked disturbance of renal function. The renal lesion, according to these observers, presents the clinical picture of a degenerative type often noted in experimental nephritis. An interesting fact, however, is that edema, an increase in blood pressure and retinal hemorrhages do not occur. In six cases studied at autopsy, according to Brown and his co-workers, marked evidences of toxic nephritis were presented. The tubular epithelium showed degenerative changes, and granular and fatty changes were also commonly observed. Marked dilatation of the stomach and duodenum was also noted at autopsy. Pfeiffer[10] has more recently called attention to the alkalosis due to pyloric stenosis associated with the characteristic changes in the blood chemistry as well as urinary symptoms similar to those observed in acute glomerulonephritis.

Tileston and Comfort[11] also observed the great increase in the nonprotein nitrogen and urea of the blood in acute intestinal obstruction, and considered this due to increased destruction of tissue. They noted that the retention of nitrogen disappears following operation for relief of the obstruction and that the retention is associated with indicanuria.

Cooke, Rodenbaugh and Whipple[12] observed an increase in nonprotein nitrogen in the blood but without renal lesions in their first experiments on animals in high intestinal obstruction. In a subsequent series of experiments, however, McQuarrie and Whipple[13] proved conclusively that renal function was greatly impaired in this condition.

Hardt and Rivers[14] called attention to a group of patients undergoing alkaline medication for peptic ulcer in whom toxic symptoms were produced. These patients presented an albuminuria, cylindruria and a rise in blood urea and alkali reserve. There was no evidence, however, of renal disturbance except in two instances in which an acute exacerbation of a chronic nephritis was observed at autopsy.

The cases reported by Tucker[15] are of especial interest. In eight instances, in which uremia developed following gastro-enterostomy, this condition appeared to be the immediate cause of death. In four of these cases an acute process was revealed, developing on a previously existing chronic nephritis.

Zeman, Friedman and Mann[16] studied four cases of pyloric obstruction with special reference to the microscopic changes produced in the kidneys. Of the four, two presented clinically the symptoms of tetany of gastric origin. The renal changes at autopsy in all four revealed identical conditions. There were degenerative changes noted in the cells lining the spiral and straight portions of the first convoluted tubules. In many sections these cells were found to be necrotic and infiltrated with granules staining blue with hematoxylin, which was interpreted as due to calcium salts. Similar changes are frequently observed in mercuric poisoning. The kidney changes are of a degenerative type and are best described, according to these observers, as a toxic degenerative nephrosis. They also called attention to the fact that gastric tetany was first described by Nazzari in 1904, and suggested that the primary factor is a pyloric or high duodenal obstruction with persistent vomiting and as a result tetany and renal changes are produced. Zeman and his co-workers found that in thirteen cats in which the pylorus was tied off, it was possible to produce lesions in all respects similar to those described in human beings. The early changes consisted in necrosis of the kidney cells as described, with calcification within forty-eight hours following operation. Grossly, the kidneys showed cloudy swelling and congestion, especially in the pyramids. Microscopically there was a diffuse tubular degeneration with necrosis and calcification occurring in the spiral and terminal parts of the convoluted tubules and later in the tubules adjacent to the glomeruli. The clinical data in the animals revealed a rise in the carbon dioxide-combining power of the plasma with lowered blood plasma chlorides and an increase in the nonprotein nitrogen of the blood.

---

[4] Van Valzah and Nisbet: The Diseases of the Stomach, Philadelphia, W. B. Saunders Company, 1898, p. 639.

[5] Biernaki: Berl. klin. Wchnschr. **28**: 611 and 652, 1891.

[6] Jones: New York M. J. **61**: 76, 1895.

[7] Zipkin: Inaug. Diss., Wurzburg, 1894.

[8] Krakow: Inaug. Diss., St. Petersburg, 1891.

[9] Brown, G. E.; Eusterman, G. B.; Hartman, H. R., and Rowntree, L. G.: Toxic Nephritis in Pyloric and Duodenal Obstruction, Arch. Int. Med. **32**: 425 (Sept.) 1923.

[10] Pfeiffer: Ann. Surg. **92**: 900, 1930.

[11] Tileston, W., and Comfort, C. W., Jr.; The Total Nonprotein Nitrogen and the Urea of the Blood in Health and in Disease as Estimated by Folin's Methods, Arch. Int. Med. **14**: 620 (Nov.) 1914.

[12] Cooke, Rodenbaugh and Whipple: J. Exper. Med. **23**: 717, 1916.

[13] McQuarrie and Whipple: J. Exper. Med. **29**: 421, 1919.

[14] Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171 (Feb.) 1923.

[15] Tucker: Wisconsin M. J. **20**: 528, 1921.

[16] Zeman, Friedman and Mann: Proc. New York Path. Soc. **24**: 41, 1924.

The pathologic renal changes are in accord with the clinical observations and laboratory data. The rôle of the kidney is important in this connection since the renal lesion appears as an outstanding pathologic change in pyloric and high intestinal obstruction.

Crohn[17] described a case of prolonged and severe atony of the stomach in which gastric retention continued notwithstanding a gastro-enterostomy. Death occurred with symptoms of decreased urinary function, showing albumin and casts in the urine, and with stupor and convulsive seizures in the extremities. These symptoms could be interpreted at autopsy only in the light of a degenerative toxic nephritis.

Bennett[18] also drew attention to the close association between gastric and renal disease, and presented the following table in evidence:

Progressive Renal Disease	Nonmalignant Pyloric Obstruction
1. Acid accumulation in the blood	Acid loss from vomiting
2. Acidosis	Alkalosis
3. Phosphorus retention	Chloride loss
4. Nitrogen retention	Nitrogen retention
5. Calcium reduction	Calcium reduction
6. Twitching and convulsions	Tetany

He concluded that not only may renal disturbances produce marked alteration in the blood chemistry, but the chemical changes in the blood due to high duodenal and pyloric obstruction may occasion extensive renal lesions.

While severe types of toxemia may follow partial or complete pyloric or duodenal obstruction, resulting finally in renal damage of more or less severity, a similar condition due to intestinal stasis may likewise occur, though perhaps to a far lesser degree. This is especially noted in persons in the later years of life who have been subjects of persistent gastro-intestinal toxemia extending over a period of many years and in whom the gradual but definite onset of this condition is observed. Toxemias of these types are due at times to intestinal stasis. They have been noted in duodenal stasis in which gastric retention and profuse bilious vomiting occur. The profound toxemia in these instances may even be associated with marked dehydration, shock and occasionally attacks of tetany. In this state there are present an increase in the nonprotein nitrogen and urea of the blood, a reduction in the chlorides and a rise in the carbon dioxide combining power of the blood plasma with an alkalosis.

Landau, Jochweds and Pekielis[19] have reported a case of this type due to carcinoma in which this complication occurred and in which the changes just referred to were observed. But a similar condition may likewise arise, though to a lesser degree, in intestinal stasis, whether ileac or colonic. In such instances, associated with long-continued habitual constipation of an aggravated type and the usual symptoms of fatigue, depression, headache, anemia, anorexia, nausea and so-called bilious attacks, one frequently finds a large excess of indican in the urine. Traces of albumin and the presence of hyaline casts are noted and finally in increasing amounts with granular casts and indican. In certain of these cases a rise in the nonprotein nitrogen and urea in the blood is gradually manifested and the renal function becomes impaired. At this period, hypertension often associated with cardiovascular disease becomes definitely established.

In this connection it is interesting to note that Redewill, Potter and Garrison[20] have recently called attention to the close relationship existing between the gastro-intestinal and genito-urinary tract and the importance of the colon as the site of focal infections in the causation of such diseases as chronic pyelitis, cystitis and prostatitis.

While absolute proof is still lacking that renal disease is definitely due to the toxic products eliminated through the digestive tract, the constant presence of large amounts of indican in the urine and the gradual onset of the renal disease following many years of digestive disturbances are at least suggestive in some instances of this relationship. As a further evidence in this direction is the fact that following the disappearance of the intestinal stasis under appropriate treatment, the urinary disturbance will not uncommonly be overcome.

Finally, it is interesting to note that certain gastric diseases modify the urinary composition. In gastric retention due to pyloric stenosis the quantity of urine excreted is markedly diminished and albuminuria may likewise occur. It is questionable, however, whether any marked damage is inflicted on the kidneys following the milder, though even prolonged, forms of gastro-intestinal disturbance.

SUMMARY

Attention is directed to the intimate relationship between disturbances of the kidneys and those of the gastro-intestinal tract. This is accounted for partly by the anatomic relations between these systems and their nerve and blood supply, as well as in a large degree by developing toxemias. The various lesions occurring in the digestive tract as the result of renal disease are considered. Early symptoms noted in connection with the digestive tract in renal disease are not uncommon. These are extremely pronounced at times and frequently overshadow those directly associated with the renal lesion. These symptoms should be constantly held in mind, inasmuch as relief can often be obtained under these conditions only by direct treatment of the primary disease. The gastro-intestinal symptoms occurring in uremia are toxic in nature; there appears to be an attempt in the diarrhea and vomiting to eliminate the toxin, which may be considered in a way as a compensatory measure.

---

[17] Crohn: Affections of the Stomach, Philadelphia, W. B. Saunders Company, 1929, p. 660.

[18] Bennett: Nephritis: Its Problems and Treatment, New York, Oxford University Press, 1929, p. 19.

[19] Landau, Jochweds and Pekielis: Arch. d. mal. de l'app. digestif **18**: 33, 1928.

[20] Redewill, F. H.; Potter, J. E., and Garrison, H. A.: Colon as Site of Infection in Chronic Pyelitis, Cystitis and Prostatitis, J. A. M. A. **94**: 688 (March 8) 1930.

On the other hand, as the result of pyloric or high intestinal obstruction, renal disease may be produced associated with profound toxemia. It is also quite possible that prolonged duodenal, ileac and colonic stasis may likewise give rise to pronounced forms of toxemia, finally leading to renal involvement. The colon may also act as a focus of infection in the production of certain urinary lesions.

In the study of renal and digestive disease it is therefore of importance to bear in mind the reciprocal relation of these organs to one another in order to arrive at correct conclusions in diagnosis and consequently in treatment.

ABSTRACT OF DISCUSSION

Dr. Sidney K. Simon, New Orleans: The authors have demonstrated a point that gastro-enterologists are prone to lay little stress on and that is the point of all inclusiveness of diseases of the intestinal tract, and the causes and the relationships they bear through reflex and toxic sources to other organs of the body. The stomach in a way may be considered as the alarm clock of the entire body, sounding an alarm when pathologic distress exists in neighboring and in many instances in far-removed structures. Such instances are matters of common knowledge, but the point has not been sufficiently stressed in reference to the genito-urinary system. This is notably true in uremia and the frequently participating digestive disturbances that many times arise before the renal phenomena appear.

Dr. Seale Harris, Birmingham, Ala.: The general practitioner first sees the patient with early manifestations of failing kidney function; and in such cases if he recognizes that the anorexia, vague abdominal discomfort, nausea, vomiting and diarrhea, and sometimes obstinate constipation, are due to metabolic changes of renal origin, he can institute treatment that may prevent irreparable damage to the kidneys and myocardium. If he fails to make the correct diagnosis and treats the symptoms as of primary gastro-intestinal origin, allowing his patient to become dehydrated and toxic from retained urinary products, his trusting patron may be doomed to an early death from uremia or a damaged myocardium. In any case of nausea and vomiting, with either constipation or diarrhea, in a man or woman past 50, in which such symptoms cannot be accounted for otherwise, it is safest to consider that they are due to renal dysfunction and treat the patient accordingly. The prompt administration of sufficient fluids and soluble carbohydrates in such cases saves lives. If the patient cannot retain water and soluble carbohydrates such as coffee or tea, orange juice, lemonade, orangeade, dextrose (corn sugar) or glucose (corn syrup) solutions, at least three or four quarts of fluids a day, dextrose solutions may be given by hypodermoclysis (5 per cent solution) or intravenously (10 per cent solution). If there is constipation, plain water may be given by proctoclysis after a cleansing enema. It is futile and even harmful to give glucose or other carbohydrates by rectum. In cases of suspected renal damage, salt solutions should be given sparingly, not more than 1,000 cc. a day. While sufficient fluids should be given, it is unsafe to give more than 4,000 cc. a day, because of the danger of what Rowntree calls "water intoxication," or of overworking damaged kidneys, or of overwhelming a toxic and failing myocardium. Of course, it is desirable to make renal function tests (phenolsulphonphthalein), and chemical studies of the blood (nonprotein nitrogen, urea, creatinine, carbon dioxide combining power of blood plasma, and so on) in such cases to determine the functional capacity of the kidneys and the character and degree of the toxemia (uremia, azotemia, acidosis or alkalosis); but the general practitioner, who may not have laboratory facilities available, should play safe by treating the patient with gastro-intestinal symptoms of suspected renal origin as if he were positive of the diagnosis of primary kidney disease. In men past 50 whose first symptoms are anorexia, nausea, vomiting and diarrhea or constipation, with or without fever, unless known to be due to food infection or other demonstrable causes, an examination of the prostate or a catheterization for residual urine may clear up the diagnosis.

Dr. A. L. Levin, New Orleans: Postoperative biliary vomiting is of frequent occurrence and is often a serious complication. This problem has been studied carefully by Dr. Eusterman, in collaboration with Drs. Brown, Hartman and Rowntree. Their studies of the subject have been described in the 1923 volume of the Collected Papers of the Mayo Clinic. The conclusion was that toxic nephritis soon develops if the postoperative biliary regurgitation is not corrected early. One must bear in mind that postoperative biliary regurgitation occurs not only in laparotomy cases but also in cases in which the abdomen is not opened. Fetor oris is another unexplained phenomenon. Dr. Alvarez explains it on the basis of reverse peristalsis. It has been demonstrated that urea is quite often eliminated by the stomach; in cases of kidney insufficiency, it is probable that an excessive amount of eliminated urea will produce fetor oris. The authors stress the close relationship between the internist and the gastro-enterologist. I would suggest the inclusion of the surgeon in this partnership.

Dr. Julius Friedenwald, Baltimore: In a study of digestive diseases one is too likely to forget that there is an interrelationship between digestive disturbances and other organs, and it was our object in this paper to direct attention to the reciprocal relationship that exists between various systems and in this instance between the digestive and renal systems.

THROMBO-ANGIITIS OBLITERANS

RESULTS OF SYMPATHECTOMY

ALFRED W. ADSON, M.D.
AND
GEORGE E. BROWN, M.D.
ROCHESTER, MINN.

Thrombo-angiitis obliterans is a peripheral vascular disease, characterized by thrombosis of the peripheral arteries and veins, resulting in intermittent claudication, localized pain, edema, ulceration and gangrene of digits, and in the later stages of the disease,[1] in massive gangrene. Besides the process of thrombosis, vasomotor spasm of principal unoccluded and collateral arteries is found which aggravates the symptoms produced by the occlusion of arteries and veins, and which, if relieved, ameliorates the symptoms, preserves digits and extremities and aids materially in rehabilitating the patient. Patients with mild symptoms may not require special treatment, whereas those with moderately advanced symptoms may respond to medical care. However, since these attacks are prone to recur in the affected extremity with extension to the opposite extremity, methods of treatment with more permanent effects have been sought. Our experiences with sympathetic ganglionectomy and trunk resection in the treatment of Raynaud's disease due to vasomotor spasm of peripheral arteries led us to employ the same surgical procedure in thrombo-angiitis obliterans, when vasomotor spasm was a contributing factor in the production of symptoms, and we herewith submit a study of 100 cases in which bilateral operations have been performed at the Mayo Clinic from 1925 to 1932.

ETIOLOGY

The specific etiology is still undetermined. Some investigators hold that the disease is due to specific infection or to toxic agents. It is most common among young men (98 per cent) who are engaged in active

---

From the Section on Neurologic Surgery and the Division of Medicine, the Mayo Clinic.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

[1] Adson, A. W., and Brown, G. E.: The Treatment of Raynaud's Disease by Resection of the Upper Thoracic and [illegible] Ganglia and Trunks, Surg., Gynec. & Obst. [illegible] Physiologic Effects of Thoracic and of Lumbar [illegible]tomy or Section of the Trunk, Arch. Neurol. & Psychiat. 22: 325 (Aug.) 1929.

exercise, but it also occurs among men occupying sedentary positions, and occasionally it has occurred among young women. It is supposed to be more prevalent in the Hebrew race, but it has been found to develop in all races. Some investigators believe that the use of tobacco, especially if in excess, is a causative factor. The exposure to cold has a deleterious effect on the patients.

PATHOLOGY

The gross characteristics of the vessels affected by thrombo-angiitis obliterans depend on the stage of the process in which they are examined. If an affected vessel is opened in the longitudinal direction, there may be some noticeable thickening of the wall, even in the absence of occlusion of the lumen. If the process is advanced, there is extensive induration of the adventitia and the surrounding zone. The artery, vein and nerve become densely adherent, and this may be so extreme that they are separated with difficulty. The arteries are more frequently obliterated than their accompanying veins. The occlusion extends for variable lengths and then stops. Sometimes occlusion occurs at two different levels in the vessel, and the lumen between may be patent. On [2] opening an occluded vessel in the longitudinal direction, starting above the point of firm occlusion, one first notices, if the disease is progressing, a soft red adherent thrombus. In a short distance this may be replaced by more firm yellowish-brown material, and the lumen here is obviously much smaller and much more difficult to follow. This may run for a considerable distance along the course of the vessel, and then may be replaced again by a red thrombus, which is possibly a propagation of the clot. If the lesion is still further advanced there will be dense yellowish-white material completely occluding the lumen, so that it is impossible to open the vessel through the lumen in the longitudinal direction. If pressure is made on the vessel here, a minute drop of blood may be expressed from a tiny canal in the occluding substance. The vessels are not brittle as in advanced arteriosclerosis; nor in the patent lumens are there markedly irregular encroachments as are occasioned by an atheromatous process. The vessels, however, are indurated. The nerves are often closely bound to the vessels by tissue which has the characteristics of scar tissue.

The microscopic appearance in this disease naturally depends on the stage to which the disease has progressed in any one particular area. One of the earliest microscopic changes in the walls of the vessels is the presence of lymphocytes. Coincident with the appearance of the lymphocytes are changes within the wall of the vessel. The nuclei of the endothelial cells become larger, and the cells become more numerous. Connective tissue cells also exhibit proliferative activity. The older lesions show a marked increase in the density of the connective tissue of the adventitia as well as thickening of the intima. In the older lesions the fibrosis becomes extreme between arteries, veins and nerves. The striking changes in the media are exudative and proliferative, with preservation of the muscular layer. The changes within the intima are distinctly proliferative, both in arteries and in veins. The intimal thickening is cellular, especially on the free border, and these cells have large oval nuclei, which tend to range themselves in a radial distribution with the long axis of the vessel. The proliferative process in the intima, though marked, rarely continues until occlusion has taken place. Hence, it has been assumed that the thrombosis that actually takes place has been initiated by the same factors that have been responsible for the proliferative changes in the walls of vessels. The thrombus goes through all of the changes from a red blood clot to an organized fibrous band. In the later stages canalization and partial recovery of the arterial circulation may occasionally result.

SYMPTOMS

Intermittent claudication is one of the earliest symptoms and undoubtedly is due to anoxemia brought on by exercise. This is followed by or associated with postural color changes, that is, rubor with dependency and pallor with elevation. If the disease progresses, localized continuous pain may be present during the period of rest. Trophic changes are manifested by nonhealing abrasions from trauma, ulcerations of digits and the development of localized or massive gangrene. The disease usually progresses slowly and may remain temporarily quiescent in any one of the earlier stages. In some cases the disease never progresses to ulceration and gangrene, whereas in others the symptoms respond favorably to medical treatment, but more often it slowly involves the opposite extremity. In reviewing a series of 240 cases of thrombo-angiitis obliterans, Barker [3] found that the disease involved the lower extremities in 60 per cent; it affected the upper extremities alone in 2 per cent, and both upper and lower extremities in 38 per cent. It further was observed that the disease would sooner or later become bilateral even though more prominent in one extremity. In reviewing these statistics of cases it was learned that the disease progressed until it became bilateral in 98 per cent of the cases.

MEDICAL TREATMENT

Medical treatment consists of changing occupation in order to avoid continuous standing on the feet during work, and avoidance of trauma and exposure to cold. When hospitalization becomes necessary, rest in bed for several weeks is essential, and the cautious employment of local dry heat, contrast baths, hot mild antiseptic baths for extremities and bland antiseptic dressings are valuable measures. The administration of protein for the purpose of producing fever and vasodilatation in collateral and nonoccluded arteries is the most effective method of relieving symptoms and encouraging the healing of abrasions and ulcers. Vaccine therapy may be continued in conjunction with the previous medical measures following dismissal from hospital. The doses of vaccine necessarily will vary with individuals, but usually range from 25,000,000 to 75,000,000 of Lederle's triple typhoid vaccine; Lilly's antigen H vaccine is equally effective. Numerous other methods such as the administration of hypertonic saline solution, sulphur and oil, and acetylcholin by injection have been tried, the results of which cannot compare with the vaccines mentioned.

Records show that 56 per cent of patients were markedly improved following active treatment and that the incidence of amputation of leg or hand, which was 25 per cent, in cases in which treatment was inadequate or was not given, had been reduced to 14 per cent. Although medical treatment has been effective and the incidence of amputation has been lowered, progression of disease developed in many cases, which stimulated us to look for more effective methods of treatment. This led to the employment of sympathetic ganglionectomy and trunk resection for a group of patients suffering with this disease. Since we had no criterion to follow in the selection of suitable cases at the beginning of the investigation, we were compelled to progress by trial and error, but as experience developed we have found that we can determine preoperatively the patients who will respond to sympathectomy. Study of the cutaneous temperature revealed that we can reproduce by sympathectomy increased blood flow and the increased skin temperature produced by vaccine therapy and that these effects remain continuously increased, whereas the effects of vaccine therapy are only temporary.

---

[2] Brown, G. E.; Allen, E. V., and Mahorner, H. R.: Thrombo-Angiitis Obliterans, Philadelphia, W. B. Saunders Company, 1928.

[3] Barker, N. W.: Personal communication to the authors.

VASCULAR STUDIES

In[4] a search for some means to determine the flow of blood to an extremity, the capillaries were examined, and elimination of heat[5] and surface temperature were measured. These procedures do not estimate exactly the volume flow of blood, but give relative estimates; one can observe the number of capillary loops to a given field and can determine the rate of flow of the corpuscles and the elimination of heat and the temperature of the skin that are dependent on the flow of blood. By the Stewart-Kegerreis calorimeter the radiation of heat before and after operation could be determined, but it was not until Brown suggested recording the temperature of the skin before fever had been induced, and during its course, that there was any accurate knowledge concerning vasospasm. The thermocouples of the electrothermometer are fastened to the various portions of the fingers, toes, hands, feet and body, in preparation for readings of surface temperature. First, readings are recorded of the temperature of the room, and of the mouth and surface of the skin. Thus, corrections can be made for the environmental temperature, and the temperature of the mouth and skin can be compared with the corresponding temperatures of a normal person, and with the readings taken during the height of fever. The fever is produced by administering, intravenously, a foreign protein, for example, 5,000,000 to 75,000,000 triple typhoid vaccine. The dose depends on the weight and sex of the patient. Hourly readings are made until the maximal rise of fever has been obtained. These readings are compared with the initial temperatures, to determine the ratios of increased temperature. General, regional and spinal anesthesia produce vasodilator effects and can be employed instead of administration of protein.

In studying the temperature of a normal person, it will be observed that the temperature of the mouth may have increased as much as an average of 2 C., whereas the temperature of the skin over the digits will have increased 4 to 6 C., or two to three times the mouth temperature, indicating that the peripheral arteries have been opened by inhibition of the vasomotor center and that more blood has been permitted to flow to the periphery. In cases of vasospastic disorder, the difference in temperatures is still greater, since the initial surface temperature of the digits is lower than that of a normal subject exposed to the same room temperature. In cases of general arterial sclerosis there may be little, if any, difference in the skin temperatures before and after administration of the foreign protein, indicating that the vessels are incapable of relaxing to allow increase of the flow of blood to the periphery. In cases of thrombo-angiitis obliterans it is possible to determine whether there exists an element of vasomotor spasm of the collateral vessels and unoccluded arteries; it is possible, too, to determine by individual readings the condition of each digit. Therefore, the test serves as an index, and unless the rise in temperature of the skin of the digits is two or more times greater than the rise of the oral temperature, the condition is considered inoperable. The test also permits determination of the degree of collateral circulation in different portions of the same digit. This aids in arriving at a prognosis concerning the preservation or loss of digits with ulcerated tips.

Further, to substantiate the opinion that vasomotor spasm exists and is due to stimuli of central origin carried over postganglionic gray rami to the arteries, instead of being due to a local fault[6] in the arterial walls, we have observed that increased blood flow with resulting increased temperature is readily produced by anesthesia of the vasomotor nerve by nerve block and regional and spinal anesthesia. In cases of Raynaud's disease the color changes are immediately abolished by anesthesia, and during the anesthesia they cannot be reproduced by emotional stimuli or exposure to cold. Similar results are obtained by a thorough interruption of gray rami, which is most effectively accomplished by removing the sympathetic ganglions with resection of trunks carrying vasomotor fibers. Following cervicothoracic ganglionectomy the retinal arteries and veins have been found to be dilated from one and a third to one and a half the preoperative size. Repeated calorimetric and cutaneous temperatures in cases of sympathectomy have revealed that the increased blood flow has been maintained for seven years in the cases in which operation was first performed.

SELECTION OF CASES

The real problem is to select suitable cases for operation and to decide when operation is indicated.[7] It is obvious that vasodilatation cannot be produced in an arteriosclerotic or occluded artery, and that surgical intervention is useless unless there is positive evidence of vasospasm in the remaining nonoccluded arteries. The operation is not indicated in the milder cases or in those in which response is quick and favorable to medical treatment. In advanced cases of massive gangrene the condition is likewise nonsurgical unless it is hoped to effect a lower amputation than otherwise would be required. Following amputation, sympathectomy may be indicated to preserve the opposite extremity.

The operation has proved to be of greatest value in slowly progressive cases and in those in which patients cannot afford or are unable to sacrifice the time required to rest in bed and receive local heat, contrast baths and vaccine therapy. During examination such patients are classified according to an outline proposed by Brown, Allen and Mahorner.[2]

Slow Progression.—This is the most common type. Coldness of the feet is usually the first symptom, followed by excessive fatigue of single digits, the arch of the foot, the wrist, ankle, calf or forearm. Excessive fatigue gradually changes into and is replaced by the pain of claudication occurring in similar areas which progresses and produces an increasing degree of disability. Color changes with change of posture are followed by trophic changes which occur spontaneously or are incited by incision of toes, removal of toe-nails, accidental trauma, amputation of toes or the application of blistering ointments. With the occurrence of trophic changes, the pain is sharply accentuated and becomes almost unbearable. The gangrenous areas increase in extent, necessitating amputation, or healing may occur in a group in which pain can be relieved. The extremities are cold; there is excessive pallor with elevation and abnormal rubor with dependency. Pulsation in the arteries is diminished or absent. The entire process is completed in from four to eight years.

---

[4] Adson, A. W.: The Results of Sympathectomy in the Treatment of Peripheral Vascular Diseases, Hirschsprung's Disease and Cord Bladder, to be published.

[5] Brown, G. E., and Adson, A. W.: Calorimetric Studies of the Extremities Following Lumbar Sympathetic Ramisection and Ganglionectomy, Am. J. M. Sc. **170:** 232 (Aug.) 1925.

[6] Simpson, S. L.; Brown, G. E., and Adson, A. W.: Raynaud's Disease: Evidence That It is a Type of Vasomotor Neurosis, Arch. Neurol. & Psychiat. **26:** 687 (Oct.) 1931.

[7] Adson, A. W.: Surgical Relief of Raynaud's Disease and Other [illegible] Sympathetic Ganglionectomy and Perivascular [illegible] Med. **5:** 161 (Aug.) 1926. Adson, A. W., and [illegible] and Lumbar Sympathetic Ganglionectomy in Peripheral Vascular Diseases: Therapeutic Value, J. A. M. A. **94:** 250 (Jan. 25) 1930. Adson, A. W.; O'Leary, P. A., and Brown, G. E.: Surgical Treatment of Vasospastic Types of Scleroderma by Resection of Sympathetic Ganglia and Trunks, Ann. Int. Med. **4:** 555 (Dec.) 1930. Brown, G. E.; O'Leary, P. A., and Adson, A. W.: Diagnostic and Physiologic Studies in Certain Forms of Scleroderma, Ann. Int. Med. **4:** 531 (Dec.) 1930. Henderson, M. S., and Adson, A. W.: Sympathetic Ganglionectomy and Trunk Resection in Arthritis: Indications and Results, J. Bone & Joint Surg. **14:** 47 (Jan.) 1932.

TABLE 1.—*Incidence of Operation Among Men and Women, Average Age, Average Duration of Symptoms on Admission, and History of Amputation Previous to Admission*

Thrombo Angiitis Obliterans Treated by Sympathectomy	Operations on Men	Operations on Women	Average, Age, Years	Average Duration of Symptoms, Months	Previous Amputations
Group 1, uncomplicated					
Disease in upper extremities	3	1	39	75	Legs, 2 Arm, 1
Disease in lower extremities	17	2	35	41	Legs, 3
Group 2, with ulcers					
Disease in upper extremities	1		34	30	
Disease in lower extremities	42	1	40	59	Legs, 4 Toes, 7
Group 3, with gangrene					
Disease in upper extremities	10		36	35	Legs, 2 Fingers, 2
Disease in lower extremities	26	1	39	57	Legs, 2 Toes, 2
Total	99	5	35.5	49	

Absence of Progression.—In this type mild symptoms of vascular insufficiency (excessive fatigue or the pain of claudication) progress slowly for a time and then remain stationary. The extremities are cold, the arteries are obliterated, and postural color changes are present. Trophic changes other than proliferation of the nails and increased thickening of the skin over the weight-bearing area do not occur. Disability is minimal in spite of symptoms which may have endured from eight to twelve years.

Circulatory Compensation.—This type is not widely recognized, although it is fairly common. Shallow ulcers do not progress and after from six months to a year healing occurs. Gradually other symptoms largely disappear, leaving the patient with extremities approximately 80 per cent adequate for all needs. With care patients in this group may go on indefinitely with extremities functioning sufficiently well for all ordinary needs. Weber[8] has noted the return of pulsation in an obliterated radial artery, and this has been observed in several of our cases.

Acute Fulmination.—In this type the clinical syndrome is the antithesis of slow progression. Claudication appears relatively suddenly and progresses rapidly. The rest pain is severe before gangrenous changes occur and greatly accentuated afterward. Edema and lymphangeitis are present around the gangrenous area and there may be slight fever and leukocytosis. The gangrene progresses rapidly; the pain is unbearable and intractable to all measures. Amputation is necessary. The process may be complete after from three months to one year. This clinical syndrome may occur at any time in the clinical course of cases presenting a previous course outlined in the first and second groups.

On completion of the examination, which includes laboratory and vascular studies, we decide on the course of treatment, basing our judgment not only on the condition of the vascular system but on the present status and course of the disease. As previously stated, the operation is not employed in mild cases without ulcer; neither is it employed in cases in which there has been no progression nor in which the circulation has become compensated. It is never wise to urge operation during the acute stage of inflammation with active cellulitis. This type of patient should be hospitalized and treated medically from three to six weeks.

The slowly progressive cases, which include most cases of thrombo-angiitis obliterans, are most suitable for sympathectomy, and even then when extensive ulcers or gangrenous digits are present, we are inclined to hospitalize patients for two or three weeks under vaccine therapy in order to determine how the individual patient is going to respond to the vasodilating effect obtained by administration of protein before sympathectomy is performed. If the disease affects both the lower and upper extremities, we usually carry out a sympathetic ganglionectomy and trunk resection to interrupt the vasomotor fibers to the extremities affected first, and then wait six weeks until the patient has thoroughly recovered before performing the second operation. We usually perform bilateral sympathectomy even though the disease appears to produce symptoms in only one extremity, since ultimately it is almost sure to involve the opposite extremity, and since sympathectomy has apparently controlled the process and preserved the opposite extremity. However, recurring phlebitis may develop in either extremity following sympathectomy but this, aside from producing localized pain and edema, does not jeopardize the life of the extremity.

TABLE 2.—*The Incidence and Relief of Intermittent Claudication and Rest Pain*

Thrombo Angiitis Obliterans Treated by Sympathectomy	Operations	With Intermittent Claudication	Relieved of Intermittent Claudication	With Rest Pain	Relieved of Rest Pain	Continuance or Recurrence of Pain
Group 1, uncomplicated						
Disease in upper extremities	4	0		3	2	1
Disease in lower extremities	19	17	16	8	5	1
Group 2, with ulcers						
Disease in upper extremities	1	0		1	1	0
Disease in lower extremities	43	36	33	36	34	7
Group 3, with gangrene						
Disease in upper extremities	10	0		10	10	0
Disease in lower extremities	27	20	12	25	17	8
Total.....	104	63	61	83	69	25

The average degree of improvement in intermittent claudication and rest pain was 85 per cent.

SURGICAL TECHNIC

As the surgical technic has been described previously,[9] we shall not go into details, as it is generally accepted that the vasomotor innervation of the arteries

---

[8] Weber, F P: Return of Pulsation in Thrombo-Angiitis Obliterans, Brit. M. J **2**: 52 (July 12) 1924.

[9] Adson, A W.: Cervicothoracic Ganglionectomy, Trunk Resection and Ramisectomy by the Posterior Intrathoracic Approach, Am. J. Surg **11**: 227 (Feb) 1931. Adson, A. W., and Brown, G E Treatment of Raynaud's Disease by Lumbar Ramisection and Ganglionectomy and Perivascular Sympathetic Neurectomy of the Common Iliacs, J. A M A **84**: 1908 (June 20) 1925; Raynaud's Disease of the Upper Extremities: The Successful Treatment by Resection of the Sympathetic Cervicothoracic and Second Thoracic Ganglions and the Intervening Trunk, ibid **92**: 444 (Feb. 9) 1929.

and veins does not run centrifugally along the vessels but that the vessels receive their innervation at various levels corresponding to the musculocutaneous segments. Although Leriche conceived the idea that vasodilation might be accomplished by interrupting the vasomotor fibers by a periarterial stripping operation, the operation was not of sufficient scope to include all of the nerves. If the vasomotor fibers are divided by ramisection or ganglionectomy and trunk resection, it is immaterial which method is used so long as they are completely resected. In treating thrombo-angiitis obliterans of the toes and feet we prefer to use the abdominal transperitoneal approach which permits removal of the second, third and fourth lumbar sympathetic ganglions with the intervening trunks through an abdominal incision. In sympathectomy of the vessels of the fingers and hands we choose the posterior approach, resecting a portion of the first rib and the transverse process of the first thoracic vertebra on each side, in order to enter the mediastinum and remove the inferior sympathetic cervical and first thoracic ganglions with the upper portion of the thoracic trunk. Occasionally, we can include the second thoracic ganglion through the same incision. When we are unable to include this ganglion we divide all ascending rami to the first thoracic and eighth cervical nerves. We believe this operation to be more thorough than the anterosuperior approach since it is difficult to include all of the vasomotor fibers in the gray rami coming from the second and first thoracic ganglions by the anterior and superior approach.

TABLE 3.—*The Incidence of Trophic Lesions, Gangrenous Lesions in Early Cases Not Improved by Operation and the Incidence of Recurring Trophic Lesions Requiring Amputation*

	Trophic Changes								
Thrombo Angiitis Obliterans Treated by Sympathectomy	Operations	Patients With Edema	Patients With Ulcers	Patients With Digital Gangrene	Amputation During Hospitalization	Recurring Phlebitis	Recurring Arterial Occlusion	With Recurrent Ulcers and Gangrene	Amputation of Extremities for Recurrent Gangrene
Group 1, uncomplicated									
Disease in upper extremities	4	0	0	0	0	0	0	0	0
Disease in lower extremities	19	1	0	0	0	2	4	1	Leg, 1
Group 2, with ulcers									
Disease in upper extremities	1	0	1	0	0	0	0	0	0
Disease in lower extremities	43	1	43	0	Toes, 3 Legs, 2	6	2	1	Toes, 1 Foot, 1 Leg, 1
Group 3, with gangrene									
Disease in upper extremities.	10	1	10	8	Fingers, 2	0	0	2	0
Disease in lower extremities	27	9	23	26 3 massive gangrene	Toes, 2 Legs, 5	2	3	5	Legs, 4
Total... .	104	12	77	34	Toes, 5 Legs, 7 Fingers, 2	10	9	7	Toes, 1 Legs, 6 Foot, 1

RESULTS

This study includes a review of 100 consecutive cases from our earliest experience to the present time. There were 89 bilateral lumbar sympathetic ganglionectomies and trunk resections and 15 bilateral cervicothoracic ganglionectomies with resection of the upper portion of the thoracic trunk. Operation was performed in 4 cases of thrombo-angiitis obliterans involving both the upper and lower extremities, which accounts for 104 bilateral operations. Ninety-six patients were males and 4 were females.

The disease occurs chiefly in the fourth decade of life (table 1). The average duration of symptoms was four years on admission. Many of the patients had had toes and extremities amputated before admission. Seven came with the disease so advanced that it was impossible to save extremities by sympathectomy. In the earlier period of investigation we attempted the operation, since we had no method to determine preoperatively the degree of vasomotor spasm (tables 2 and 3).

Table 4 reviews the results accomplished with the complications incident to operation. The neuritic symptoms are not relieved by either medication or sympathectomy. In several instances cutaneous nerve branches were divided with no relief. In two instances, chordotomy was performed with moderate success. The symptoms, undoubtedly, are due to interstitial changes resulting from thrombosis of the blood supply to these nerves. Fortunately, neuritic pains are only occasionally present.

TABLE 4.—*The Results Obtained and Complications Encountered*

	Results				
Thrombo Angiitis Obliterans Treated by Sympathectomy	Operations	Improved	Average Degree of Improvement, per Cent	Useful Extremity	Complications
Group 1, uncomplicated					
Disease in upper extremities	4	4	81	4	Pneumonia, 1 Incomplete operation, 1
Disease in lower extremities	19	16	76	16	Neuritis, leg amputation Neuritis, chordotomy, death Death, 1; pulmonary embolism
Group 2, with ulcers					
Disease in upper extremities	1	1	90	1	
Disease in lower extremities	43	39	78	33	Neuritis, 1; chordotomy Neuritis, 2 Pneumonia, 1
Group 3, with gangrene					
Disease in upper extremities	10	10	82	9	Incomplete operation, 3 Pneumonia, 1
Disease in lower extremities	27	17	73	13	Deaths, 5; due to pneumonia, 2 cardiac, 2 anesthetic, 1 Neuritis, 1
Total . .	104	87	80	76	

In the absence of trophic lesions sympathectomy checked progress of disease in opposite extremity in every instance.

During the early development of sympathectomy in the treatment of thrombo-angiitis obliterans, approximately one patient in seven was sympathectomized. During the last two years the ratio has been increased so that one in three is advised to have sympathectomy. It is further interesting to note that amputation following sympathectomy has been lowered in the last two years through more accurate evaluation of vasomotor spasm and the proper selection of cases for operation.

Sequelae.—Since the vasomotor fibers are intermingled with other postganglionic gray fibers supplying sebaceous and sweat glands, and pilomotor muscles, it is a necessity that these two be divided during sympathectomy as dryness of the skin is thus produced. This dryness is not serious, and if it appears troublesome it can be relieved by the application of hydrous wool fat. The condition serves as an excellent index in determining whether all of the vasomotor fibers have been divided, for if they are not all divided sweating will persist. Lumbar sympathectomy includes postganglionic fibers to the hypogastric plexus, but since these fibers carry inhibition stimuli to the detrusor muscle of the bladder, the musculature of the rectum and contraction stimuli to the internal sphincters of the bladder and rectum, complaints are not made by the patient. This is undoubtedly due to the fact that other fibers carrying similar impulses remain uninterrupted in the presacral nerve and that voluntary control to the external sphincters is not disturbed.

Cervicothoracic ganglionectomy and trunk resection produce Horner's syndrome, but when bilateral the apparent enophthalmos, contracted pupils and the narrowing of the palpebral fissure are not conspicuous nor do they interfere with vision.

ABSTRACT OF DISCUSSION

Dr. A. W. Allen, *Boston:* Our experience in a series of peripheral circulatory disorders at the Massachusetts General Hospital would bear out the remarks of Drs. Adson and Brown in regard to sympathetic ganglionectomy as far as the primary and secondary vasomotor conditions are concerned. Our experience, however, has not been like theirs with thrombo-angiitis obliterans. Perhaps the cases in Rochester may differ from ours somewhat in that they are dealing with the disease in an earlier stage. I am inclined to think that the cases that come into our hospital as bed patients are usually rather advanced. In this advanced group we are not able to find more than one case out of ten with a sufficient vasomotor gradient to warrant an attack on the sympathetic nervous system primarily. The cases of thrombo-angiitis in which we have used this operation have been disappointing. We believe that certain general measures which we have advocated and which are undoubtedly carried out in Dr. Adson's clinic by the peripheral vascular service may play a large rôle in the success of some of his cases, perhaps as large a rôle as the sympathectomy itself. In a chart illustrating a comparative diagnostic procaine hydrochloride block of the sympathetic nervous system, by spinal anesthesia, the upper curve represents a case of primary vasomotor disturbance, Raynaud's disease, and shows a quick rise in surface temperature. In five minutes' time the temperature is elevated approximately 15 degrees fahrenheit. The lower curve is that of a typical case of thrombo-angiitis obliterans, under spinal anesthesia, and it takes, in this case, forty minutes to produce a rise in surface temperature of 9 degrees. I would not consider that a patient who had a vasomotor index as low as 9 degrees would respond to sympathectomy in a satisfactory manner. The important feature in the type of case that we see is the pain these individuals have, the rest pain. A large percentage of them have open lesions; in fact almost every patient submitted to our hospital wards has open lesions of some sort. In these cases we find that sympathectomy will not relieve the pain. Therefore we have had to develop another form of treatment for these individuals. The peripheral sensory nerves of the foot are exposed at about the junction of the middle and lower thirds of the leg. By exposing these nerves under local anesthesia and injecting the larger nerve, the posterior tibial, over a short distance with alcohol, we can anesthetize that nerve for a period of from four to eight months. The smaller nerves, i. e., the anterior tibial, the peroneal and the sural, can best be treated by crushing. The whole foot can be made anesthetic by this method. These patients are absolutely comfortable, and in addition to being able to tolerate dressings, can carry out exercises. This nerve block can also be counted on to produce exactly the same rise in surface temperature or capillary dilatation as is produced by sympathectomy.

Dr. Alfred W. Adson, Rochester, Minn.: I want to say just a word about vascular conditions. It is true that in our original experience the results of sympathectomy were not as good as they are today, because we were attempting to operate on patients who did not have sufficient vasospasm or, rather, sufficient vessels that could go into spasm that we could relieve. Therefore, all our patients are hospitalized, given vaccine and a regional or spinal anesthetic, to determine the degree of vasospasm, and unless we are able to record an increase in skin temperature over the digits twice as great as that obtained by the mouth temperature during the height of fever, we do not operate. In using the spinal or the regional anesthesia the same vasodilatation effects are accomplished and sympathectomy is not employed unless the peripheral skin temperature is raised 3 degrees centigrade. We frequently administer from one to three injections of typhoid vaccine to determine whether the patient is relieved by vasodilatation. If the index is favorable and he is relieved, we perform sympathectomy. We have encountered patients with pain; however, one is not always able to relieve that pain by simply cutting the nerve, since interstitial changes have occurred above the local ulcer. We have done chordotomy in two cases, with only moderate success.

HAVERHILL FEVER (ERYTHEMA ARTHRITICUM EPIDEMICUM)

A CASE REPORT AND BACTERIOLOGIC STUDY

J. BEACH HAZARD, M.D.
AND
ROBERT GOODKIND, M.D.
BOSTON

In January, 1926, Place, Sutton and Willner[1] made careful clinical and epidemiologic studies of a group of cases occurring in Haverhill, Mass. The condition they observed in forty-five cases appeared to constitute a definite entity and was called by them "erythema arthriticum epidemicum." The outstanding clinical features of the cases described were (1) the symptoms of an infection, (2) a rash, and (3) a polyarthritis. Onset was sudden and came with or without chills, with fever and malaise and with or without vomiting, intense headache and prostration. Fever in the beginning often reached from 103 to 105 F. and came down usually on the third or fourth day. The period of eruption commenced on the first to the third day of illness, increased for from one to three days, and lasted then from three to seven days. This eruption consisted of dull red, circumscribed, maculopapular lesions from 2 to 4 mm. in diameter, in general of rubelliform to morbilliform configuration. The rash was distributed mostly on the extensor aspects of the extremities, about joints and in more sever cases across the shoulder girdle and on the trunk or face. Petechial hemorrhages were observed and could be produced by applying a tourniquet. Desquamation was of fairly frequent occurrence. Joint involvement began usually on the

---

From the Pathological Laboratory and the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) of the Boston City Hospital, and the Department of Medicine, Harvard University Medical School.

[1] Place, E. H.; Sutton, L. E., Jr., and Willner, Otto: Erythema Arthriticum Epidemicum: Preliminary Report, Boston M. & S. J. **194:** 285 (Feb. 18) 1926.

first to the fourth day of illness. Pain occurred usually in two or more large joints and occasionally in the small joints of the fingers and toes. Active or passive movement of the spine was painful in most cases. Changes varied from almost negligible involvement to marked swelling and redness with fluid. These persisted for three or four days and in some cases beyond two weeks. Variable symptoms were cough, sore throat, bronchitis and delirium. White blood counts ranged from 6,800 to 19,000. Detailed bacteriologic studies of an organism recovered from the circulating blood and from the joints of patients during the Haverhill epidemic were carried out in the Boston City Hospital by Parker and Hudson.[2]

During the spring of 1931, a case of Haverhill fever came under observation in the Fourth Medical Service of the Boston City Hospital. The clinical course of the disease was typical and the specific organism was isolated from the circulating blood on several occasions. The infrequency of this infection, the difficulty in the diagnosis of sporadic cases and the importance of recognizing such cases seem to warrant this report.

REPORT OF CASE

The following is a clinical summary of the case observed by us:

History.—J. C., a man, aged 58, separated from his family and living under poor social conditions, was admitted to the Fourth Medical Service, Boston City Hospital, shortly after midnight, April 23, 1931, complaining of "weakness and pains in the legs." Several months previous to admission the patient "froze" his feet. He noticed afterward increasing swelling of both of them on standing and recurrent numbness in the left foot. Sudden bleeding from the second left toe while walking was noted three weeks before admission. He began to complain of a severe sore throat at about this time. A sensation of tingling and "burning up" in his toes and feet began to trouble him from eight to ten days previous to entrance. About two days after onset of this symptom he bathed his feet in cold salt water in the harbor and noticed many bright red spots on both legs. These lesions became more numerous before he entered the hospital. His appetite had been poor for two weeks, as he felt "generally sick" and abstained often from eating through fear of vomiting. No actual vomiting, abdominal pain or jaundice had occurred. For one week the patient had felt worse and had "trembling chills, just like the malaria shake" at apparently irregular intervals. During the five days previous to admission, he had pains in his feet that were so severe as to limit activity. His knee joints became very painful and at times felt as though "pounded with a club." Considerable spasm resulted if he tried to flex them. His hands began to tingle and burn two days before entrance and became increasingly weak and painful. He had severe pains in his wrists and elbows for the same period of time. He had had many colds all his life and at least one severe sore throat each winter. When the patient was quite young he had what he called rheumatic fever, with swollen, painful joints, for which he was in bed at intervals for a period of nine months. He had had pneumonia twice. Hemoptysis occurred twenty-three years ago, after which he stayed in tuberculosis sanatoriums for three periods and had repeated hemoptyses. The last occurred seven years ago. Loss of weight in recent years was questionable. There was no history of night sweats.

The patient cooked his own meals and ate plenty of fresh vegetables and fruits. He used a considerable quantity of alcohol until prohibition.

Nocturia had occurred three or four times for one year. He experienced no pain or burning except for a slight, rare suprapubic pain on attempting to start the stream. He had had gonorrhea at the age of 20. Syphilis was denied by symptoms and name.

Examination.—He was fairly well developed and nourished and in no apparent distress. The eyes, ears, nose and lips were normal. The tongue showed a small red area from 3 to 4 mm. in diameter, with an ulcerated center, in the middle of the left edge. This was apparently caused by the sharp edge of a carious tooth. There was a marked oral sepsis. The throat was diffusely inflamed, with small tonsils spread out over the faucial walls. No exudate or membrane was present. Small tonsillar and posterior cervical lymph nodes could be palpated. The thyroid was of normal consistency and shape. The chest was long, with a depression in the left anterolateral region and a flare of the costal margin below. Expansion was normal. Examination of the lungs revealed evidence of an old fibroid tuberculosis of the right upper lobe. The heart was normal. The spine showed a slight kyphosis in the thoracicolumbar region. The abdominal wall was somewhat rigid but no tenderness was present. The liver extended 4 cm. below the costal margin and the edge was sharp and hard. The spleen and kidneys were not palpable. The genitalia were normal.

Examination of the extremities revealed the following: Numerous circumscribed bright red, some apparently hemorrhagic macules 1 to 4 mm. in diameter and a few papules were scattered over both legs, most numerous and extensive over the extensor aspect. A smaller number of lesions were found on both arms, on the palmar surfaces of the hands and in the right axilla. Swollen areas of localized redness and tenderness quite definitely demarcated up to about 6 cm. in diameter were present, the largest posterior and a little above the left internal malleolus; others about both knees and over the dorsa of the hands above each carpus. One or more appeared over the middle of both lower legs anteriorly, quite apart from any joint. The ankles, knees, wrists and elbows were quite tender to palpation and passive movement caused pain. A small amount of fluid was present beneath the right patella. No crepitus was evident. The deep reflexes were present. The second toe of the left foot was macerated and infected. The nail was absent and there was evidence of an osteomyelitis of the phalanges. There was sclerosis and tortuosity of the peripheral arteries. Dorsalis pedis pulsations were present in both feet.

Systolic blood pressure was 134, diastolic pressure 80, temperature 100.4 F., pulse 80, respiration 20.

The white blood count on admission was 9,600 per cubic millimeter. The differential count showed polymorphonuclear neutrophils 66 per cent, lymphocytes 27 per cent, monocytes 7 per cent, eosinophils 0 per cent, and basophils 0 per cent. The red blood count was 4,840,000 per cubic millimeter. Hemoglobin measured 77 per cent by the Sahli method. The red cells showed slight poikilocytosis, anisocytosis and polychromatophilia. Platelets were normal. The white blood count reached 10,500 three days after admission but remained below this level the remainder of his stay in the hospital.

Roentgen studies showed an old healed Pott's disease and hypertrophic arthritis of the lumbar spine; elbows and hands, normal; feet, marked arteriosclerosis; left foot, destruction of the terminal phalanx of the second left toe and osteomyelitis; knee joints, hypertrophic arthritis; teeth, multiple caries and periapical infection; chest, old fibroid tuberculosis.

Throat cultures on admission showed Streptococcus viridans, Pneumococcus, and Staphylococcus albus. Cultures of fresh material from the infected toe revealed Staphylococcus aureus.

Blood cultures showed a positive growth of Haverhillia multiformis. The clinical diagnoses made at the time of admission were pulmonary tuberculosis, symptomatic purpura and sepsis of the toe. Typhus fever and Rocky Mountain spotted fever were also considered as possible diagnoses.

Clinical Course.—During the first two weeks the patient had a septic temperature with daily swings from 100 to 103 F. His pulse remained at a level between 80 and 100. Following the third and fourth weeks, during which his temperature was irregular with two rises to 100 and one rise to 101, the patient remained practically afebrile.

On the day following admission the rash appeared to be somewhat faded and within four days it had largely disappeared except for a faint dull pigmentation. The painful and tender areas of induration persisted and several became more prominent, particularly in the region of the right elbow.

---

[2] Parker, Frederic, Jr., and Hudson, N. P.: The Etiology of Haverhill Fever (Erythema Arthriticum Epidemicum), Am. J. Path. **2**: 357 (Sept.) 1926.

Fluid in the right knee joint was noted for several days but was of small amount, so that aspiration was not attempted.

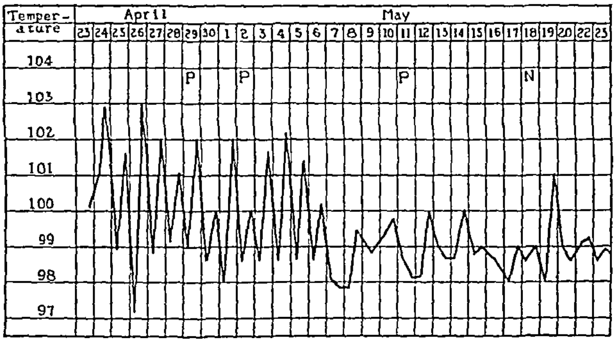
For about three weeks after admission, migratory pain and tenderness with decreasing periarticular induration and swelling persisted. It was five and a half weeks before joint symptoms had subsided. The roentgenograms, taken on admission, of the joints involved during this time, with the exception of the knees, were interpreted as negative.

While in the ward he developed a prominence over the localized kyphos and some soft tissue swelling lateral to it. This was considered as an advance of the old Pott's disease. Further roentgenograms were interpreted as such. The second left toe was amputated three weeks after admission and the wound healed promptly. Orthopedic measures and social aspects of the case kept the patient in the ward several months. He remained, however, symptom free and afebrile.

In summary, the important and characteristic clinical features of the case were a severe sore throat, a rash, pain and tenderness in the ankles, knees, wrists and elbows, and a septic temperature.

BACTERIOLOGY

The organism was recovered from the circulating blood seven days, ten days and nineteen days after admission of the patient to the hospital.[3] The first negative blood culture was obtained twenty-six days after his entrance. Cultures were taken by putting from 5 to 10 cc. of blood from a vein into 100 cc. of plain broth (beef infusion containing 0.1 per cent dextrose). Incubation for seventy-two hours was necessary to produce good growth of the organism. The positive cultures showed darkening of the blood at the bottom of the flask and numerous round yellow balls from 0.1 to 0.3 cm. in diameter lying on the surface of the layer beneath the clear broth. Smears revealed numerous gram negative rods, arranged singly, in small clumps and in short tangled or parallel chains.



Temperature in case of Haverhill fever: *P*, blood culture positive; *N*, blood culture negative.

Morphology.—The morphology of the organism is to a considerable extent dependent on the type of medium used for growth. In favorable mediums it appears microscopically as a rod from 2 to 5 microns in length and about 0.1 to 0.4 micron in width, with a tendency to form short chains, which are arranged in small clumps, tangled together or parallel. Many bacilli from 3 to 4 microns in length and some long, slender bacilli are usually present. Isolated coccoid forms and short chains of cocci are also found.

In less favorable mediums, the polymorphism of the organism is most evident. Besides growing in bacillary form, which may compose the minor portion of the culture, the organism occurs in long fine threads and filaments, which are often quite tangled and measure from 30 to 40 microns or more in length. Long rods may occur in the course of the threads or separated from them. Frequent fusiform spherical swellings in the filaments and rods are characteristically found. These enlargements are sometimes from 10 to 15 microns in thickness. There is evidence in this type of growth of true branching, Y-shaped forms being occasionally found. Some threads stain irregularly, showing many fine granules in the cell body.

On solid mediums, the polymorphism reaches its maximum and the filaments and threads may form 75 per cent or more of the elements. In transplants from solid to liquid mediums, the variation in size and shape is retained to a large extent.

The age of the culture seems to bear little relation to the morphology. Old cultures on favorable mediums may show only a small percentage of the filaments, which appear to be resistant forms.

In smears of material from infected animals, such as the peritoneal exudate and heart's blood, the organisms are found only as short slender rods, from 2 to 3 microns in length.

Staining Reactions.—The organism, as freshly recovered from a blood culture, stains feebly with aniline dyes. It is gram negative and is readily decolorized by acid. No capsules or spores can be demonstrated.

Odor.—No odor is present.

Cultivation.—The optimum temperature for cultivation is from 35 to 38 C. Prolonged incubation kills the organism, five days being the maximum to ensure living cultures. In ascitic fluid broth, the length of life during incubation is less than in other mediums.

The mediums of choice are blood broth, ascitic fluid broth, or fresh clotted rabbit's blood that has been inactivated by heating it for fifteen minutes at 55 C. In ascitic fluid broth the organism grows typically at the bottom of the tube or along the side, with clear broth above. Fluffy balls of organisms from 0.1 to 0.3 cm. in diameter are frequently present. The growth in blood broth is the same as that described in blood cultures. After repeated subculturing, the organism changes the blood to a dark purple color in forty-eight hours. No gross evidence of growth is seen in clotted rabbit's blood, but microscopically an abundant growth of short bacilli, singly and in chains, is found at the end of from twenty-four to forty-eight hours' incubation. The organism does not grow in plain broth and shows only slight growth in hormone broth.

For quick growth of the organism, ascitic fluid broth and blood broth are the most satisfactory mediums. Clotted rabbit's blood is to be preferred for preserving cultures, as the organism is viable in such a medium for as long as four weeks if kept at icebox temperature. Cultures in blood broth die in from ten to fourteen days, and in ascitic broth the organism cannot be consistently recovered after five or six days.

On solid mediums it does not grow aerobically and shows scant growth under anaerobic conditions. An abundant growth is obtained by using a method described by Parker and Hudson. A transplant on solid mediums is placed in a jar with a burning candle. The jar is then sealed off so that it is air tight and the candle flame dies out. The atmosphere so produced seems to be of an optimum physical and chemical composition for growth. By such means it is possible to grow the organism on ascitic fluid agar, on blood agar, and on a medium composed of glycerin, extract of potato and infusion broth with egg yolk added. Loeffler's medium is unfavorable. On solid mediums the organism grows as an opalescent, round, slightly raised colony from 0.1 to 0.3 cm. in diameter. When scraped from the surface, it appears white and mucoid, stringing out and easily rolling off the loop.

---

[3] Credit is due to Miss Marion E. Lamb for first demonstrating the organisms in blood culture.

The organism is fairly sensitive to variation in hydrogen ion concentration. The optimum lies between p_H 7.4 and p_H 8.0.

Oxygen and Carbon Dioxide Relations.—As indicated, the organism is neither strictly anaerobic nor aerobic. The fact that it grows only at the bottom of the tube in liquid mediums indicates its partial anaerobic tendencies. Successful growth on solid mediums only in a candle jar likewise argues for a carbon dioxide-oxygen tension differing from either strictly anaerobic or aerobic conditions.

Sugar Reactions.—Ascitic fluid broth and hormone broth were acidified by the organism and therefore could not be used in determining the sugar reactions. However, a simple medium composed of peptone water (peptone 1 per cent, sodium chloride 0.5 per cent), with 10 per cent ascitic fluid added, furnished a medium rich enough for growth and showed no appreciable change in hydrogen ion concentration. Controls were set up as follows: (1) twelve uninoculated tubes, each containing the medium with 1 per cent of the various sugars used added and (2) one inoculated and one uninoculated tube containing the medium only. With phenol red as an indicator, the control tubes were unchanged after incubation. All changes in the inoculated sugar tubes, except for starch and dextrose, lay between p_H 6.6 and p_H 7.0. In the tubes containing these two sugars the p_H was reduced to about 5.2, as indicated by methyl red. Acting on levulose, dextrose, maltose and starch, the organism formed acid at the end of forty-eight hours, while the p_H of tubes containing inositol, sucrose, xylose, glycerin, rhamnose, lactose and inulin was unaffected. No further change was observed at the end of three, four, six or ten days' incubation. A second series of sugars gave similar results.

Virulence.—In studying the virulence of the organism, white mice and rabbits were utilized. White mice injected intraperitoneally with twenty-four or forty-eight hour cultures died within two to seven days. The amounts used varied from 0.5 to 1 cc. of blood broth or ascitic fluid broth cultures. Postmortem examination of animals dying from two to three days after inoculation was negative. In those surviving from five to seven days, lesions were found in the conjunctiva, pericardium, pleura and mediastinum. A purulent conjunctivitis began on the second or third day after inoculation and was preceded by a period of probable photophobia during which the mouse kept its head buried in the sawdust on the floor of the cage when exposed to the light. The lesions of the anterior mediastinum and pericardium consisted grossly of a collection of purulent exudate. Microscopic examination revealed a collection of polymorphonuclears, serum and some fibrin on the surface of the pleura and pericardium. Short, slender gram negative rods were seen in smears of the exudate.

No joint lesions could be produced by intraperitoneal injection. When 0.3 cc. of a twenty-four hour culture was injected into the joint of one mouse, it survived for seven days and then died, showing typical lesions of the eyes, mediastinum and pericardium. The joint injected was swollen and contained a quantity of thick white purulent exudate. Microscopically, it showed a collection of polymorphonuclear leukocytes and serum over the synovial surfaces. No organisms were demonstrable on smear.

Two young rabbits weighing from 900 and 920 Gm., respectively, were inoculated intraperitoneally with a twenty-four hour growth of organisms in 100 cc. of bouillon, which had been centrifugated and resuspended in 10 cc. of saline solution. Three such injections at intervals of forty-eight hours failed to produce any lesion or symptom.

Agglutination Reactions.—Agglutination tests carried out with the patient's serum and the organism were positive in dilutions of 1:640, during the second week after onset. The bacterium did not agglutinate in normal human serums.

Two strains of proteus X19 failed to agglutinate with the patient's serum in any dilution.

Agglutination reactions carried out with the serum of the patient and B. typhosus and organisms of the B. paratyphosus A and B groups were negative.

Classification.—In respect to the classification of the organism we would concur with Parker and Hudson, who state that it seems to belong in the order Actinomycetales, in the family Mycobacteriaciae and consider it as a new genus, Haverhillia multiformis.

COMMENT

Organisms similar to or identical with the one we isolated have been reported in the literature from time to time in the past, but in most instances the bacteriologic studies are so brief that exact correlation of characteristics is not possible.

Levaditi, Nicolau and Poincloux[4] were the first to describe in detail an organism which, except for minor details, is identical in morphology and growth characteristics with the one isolated in this case. Smears of the organism have been declared identical by Levaditi. Clinically, their case was like the one we have described.

The organism studied by us shows the same characteristics as the one described by Parker and Hudson, and the cases reported by Place, Sutton and Willner presented a similar clinical picture.

Blake,[5] from a case showing the clinical symptoms of rat bite fever (Sodoku) and history of rat bite, isolated an organism which he called a streptothrix but which resembled both morphologically and culturally the organism isolated by us. Schottmüller[6] earlier had isolated a similar organism from two cases, one following a rat bite, the other a squirrel bite. From a case of rat bite fever, MacKie and McDermott[7] obtained from blood culture an organism similar to that described by Blake, which agglutinated in the patient's serum in dilutions as high as 1:1,250. However, several days later by injection of tissue from a lymph node into a guinea-pig, they were able to isolate the Spirillum minus of rat bite fever. They considered the first organism as probably a secondary infecting bacterium. It is possible that the organisms isolated by Blake and Schottmüller from cases clinically resembling rat bite fever were of a similar nature. Other reports of organisms, which in the brief descriptions available seem to resemble Haverhillia multiformis and which were isolated from cases that were clinically rat bite fever, have been given by Ebert and Hesse,[8] Tunnicliffe and Mayer,[9] and Litterer.[10] Tileston[11] observed a bacterium resembling Blake's organism in the blood stream but was unable to grow it from blood culture.

---

[4] Levaditi, C.; Nicolau, S., and Poincloux, P.: Recherches sur l'étiologie de l'érythème polymorphe aigue son agent étiologique; Streptobacillus moniliformis, Compt. rend. Acad. d. sc. **180:** 1188, 1925; Presse méd. **34:** 340 (March 17) 1926.

[5] Blake, F. G.: The Etiology of Rat Bite Fever, J. Exper. Med. **23:** 39 (Jan.) 1916.

[6] Schottmüller, H.: Aetiologie und Klinik der Biszkrankheit, Ergängungsheft zu Dermat. Wchnschr. **58:** 77, 1914.

[7] MacKie, T. J., and McDermott, E. N.: Bacteriology and Experimental Observation on a Case of Rat Bite Fever: Spirillum Minus, J. Path. & Bact. **29:** 493 (Oct.) 1926.

Proof of the etiologic rôle of the organism in our case is based on its isolation from three successive blood cultures and its agglutination in the patient's serum. Furthermore, the clinical resemblance of our case to similar cases from which an identical organism has been isolated gives further proof that Haverhill fever is a clinical entity with a definite bacteriologic etiology.

The source of this infection is unknown. In our case no suggestion could be obtained. Parker and Hudson, and Place, Sutton and Willner thought it might be milk borne, and their assumption was supported by the fact that each patient with the exception of two in the Haverhill epidemic used milk which came directly or indirectly from the same dairy. However, bacteriologic proof was lacking as the organism grew poorly in milk, and all attempts to produce an infection in a cow proved unsuccessful. Levaditi and his co-workers[12] recently isolated an organism that occurs spontaneously in mice and described it as resembling the organism that he isolated from a case in 1925. Inoculation of mice produced gross lesions similar to those produced by us[13] However, a strain of the organism given us by him failed to agree with either the growth or the morphologic characteristics of our organism.

The isolation of a definite organism from the circulating blood of patients having a similar clinical picture establishes "Haverhill fever" as a clinical entity. The organism has such specific characteristics that, even in the absence of an antiserum for carrying out a serologic diagnosis, its identification is possible.

---

[8] Ebert, B, and Hesse, E · Zur Klinik und Bakteriologie des japonischen Rattenbiszfiebers (Sodoku), Arch f klin Chir. **136**: 69, 1925

[9] Tunnicliffe, Ruth, and Mayer, K: A Case of Rat-Bite Fever, J Infect Dis **23**: 555 (Dec) 1918

[10] Litterer, William A New Species of Streptothrix Isolated in a Case of Rat Bite Fever, J A M A. **68**: 1287 (April 28) 1917.

[11] Tileston, Wilder The Etiology and Treatment of Rat Bite Fever, J A M A **66**: 995 (April 1) 1916

[12] Levaditi, Constantin, Selbie, F R, and Schoen, R · Les arthrites du rheumatisme polyarticulaire spontane de la souris provoque par le Streptobacillus moniliformis, Compt rend Soc de biol **103**: 1193 (May 1) 1930 Levaditi, Constantin, and Selbie, F R Mode de transmission de l'erytheme polymorphe aigue epidemique, Compt. rend Acad. d sc. **189**: 1332, 1929

[13] Levaditi, Constantin, Selbie, F R, and Schoen, R La myocarditie dans le rheumatisme polyarticulaire de la souris provoque par le Streptobacillus moniliformis, Compt rend. Soc. de biol **103**: 463 (Feb. 21) 1930

Conversation with a Patient.—Often the busy doctor feels he has no time to spend long hours in conversation with a patient but occasionally such an interview might obviate much suffering, as well as many visits to the office or to the patient's home. Too often this form of approach is replaced by the deftness of craftsmanship, and the use of ingenious tools is substituted for a thoughtful consideration of the problem. If such serious symptoms may arise solely from emotional disturbances, consider, for an instant, the deplorable plight of the poor fellow who has to wrestle, not only with an organic disease, but with his emotions as well. For, I suppose, it is fair to say that no patient suffering from an organic disease, unless his mind be clouded, is free from more or less emotional strain. Whether this depends on the readjustments made necessary by his actual state of illness, or whether it depends on a misinterpretation or improper estimate of symptoms, the emotional strain becomes an actual part of the disease, and has a definite bearing on its course.—Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

THERAPEUTIC METHODS IN A PSYCHIATRIC HOSPITAL

WILLIAM C. MENNINGER, M.D.
TOPEKA, KAN.

It is a frequent experience to have a medical confrère ask, "What do you do for your patients in the sanatorium?" This question would be asked only about a hospital for patients with mental disorders. All physicians are well acquainted with measures of treatment in the general hospital, but to most of them hospitalization of patients with mental disease means only diagnosis and custody. It is my purpose in this paper to report the therapeutic measures used in a modern psychiatric hospital where my associates and I are attempting to put into practice the principles of dynamic psychiatry.

A patient comes to the hospital not with symptoms, but with problems. What can be done for him? It is not sufficient that he be made physically comfortable; rest and freedom from responsibility alone will not satisfy his psychologic needs. His problems must be studied intensively, interpreted and a solution attempted. This solution can be worked out in two ways: first by the creation of an environment in which the patient can function with more ease than in that from which he has come, and second, by the establishment of a series of scientifically controlled friendships in the course of prescribed therapy.

ENVIRONMENT

From the moment the patient enters the hospital we attempt to provide for him an environment suited to his needs and wishes, i. e., to *him,* rather than to adapt him to the institution. The hospital with all its necessary prohibitions and restrictions, paradoxically, must also permit an opportunity for freedom and an outlet for expression. It must protect the patient from the world and often from himself, and simultaneously create an atmosphere of confidence and reassurance. Above all, it must be a highly organized, efficient institution, and at the same time conceal the organized efficiency and the impersonal institutional air.

Individual differentiation in the manner of the patient's reception and management in the hospital is a large factor in his subsequent improvement. Such individualization is possible only through recognition of the emotional plight of each patient. H. K., for example, a college student, entered our hospital with the delusion that he was in hell; he was tense, mute, fearful and extremely sensitive. In view of this, the nurses were specifically instructed to take frequent occasion to explain his new surroundings in reassuring terms. Extraordinary care was taken to prevent any shock that would aggravate his mental distress. On his first visit to the woodworking shop it was noted by the occupational therapeutist that he shrank from the harsh noises of the saw and the hammer, and that his anxiety was intensified when he was in proximity to one of the workers who was using a crowbar. For this reason basketry work in his room was prescribed until his social reintegration permitted him to return to the workshop.

J. N., to cite another example, a middle-aged minister, came to the hospital loathing himself, "a God-forsaken sinner," unworthy and intolerant of any kindness. He

---

Read before the Section on Nervous and Mental Diseases at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932

was eager to abase himself before everyone and rejected all sympathy because of his strong introjected hostility, and his consequent feelings of guilt and of the need for punishment. No attempt was made to probe into his difficulty at first, and no obtrusive attention was given him. Opportunity was provided for him to work out his craving for punishment in washing walls, splitting wood, polishing floors—anything that gave him an opportunity to serve. He was helped most by a kind of severe kindness which afforded him relief for his acute sense of guilt. Standardized cheer and consolation, a so-called ideal environment, would only have pushed this patient into deeper depression, because it would have intensified his feeling of unworthiness.

H. W., a powerfully built, middle-aged, prosperous farmer, came to the sanatorium believing all was lost, his family starving, hospitalization foolishness and suicide his only solution. Flowers and sunshine, a cheery nurse and reassuring words would have nettled this man and confirmed his arguments that hospitalization for him was "expensive foolishness." Instead of catering to his discontent, his disgruntled arguments and negativistic unsocialness were ignored, and attention was given him only when he entered into activities of the hospital and followed his program. In other words, a premium was put on his cooperation. For instance, at the weekly picnics he would attempt to draw off the doctors and recite his grievances. These attempts were good-naturedly thwarted by putting him at second base on one of the baseball teams composed of doctors, nurses and employes, as well as the other patients. Discovering that he could not obtain attention except by cooperating in the affairs of the hospital, he developed a more conciliating attitude, which eventually made possible his recovery.

Quite a different method was used with H. Mc., who was encouraged to express himself as fully as possible within the limits of safety for himself and others. This patient was excited, talkative and demanding; food and sleep were unimportant in his hyperkinetic state. He asserted, on entering the sanatorium, that he was just in time to receive a spiritual revelation from the God-Head, which must be told only to a priest. The priest came to the hospital although it was late at night. We felt that it was better to give him some harmless outlet for his expansiveness rather than the customary drug sedative. He wrote reams of copy, and finally called for a typewriter on which he transcribed the History of the Bible, and the Epistle of the Thirteenth Apostle (as he called himself).

No discouragement or disapproval clouded this discharge of energy. Care was taken not to give this patient any invitation or opportunity to follow his conscious desires to do violence or to escape, which were obviously in conflict with his unconscious desires to be held in restraint. He sometimes begged for this restraint, as, for example, when during intravenous treatment he would ask an attendant to hold his arm lest he harm some one. As much freedom as possible was permitted him to carry out his wishes, with such modification as this supporting restraint to his nearly obliterated super-ego made necessary.

Thus, instead of supplying a uniform environment, which seems comfortable to us as healthy persons, the hospital furnishes each patient with an environment that he can accept with greater ease and comfort, because it allows him to express himself at a simpler level than that of the reality from which he has taken flight in his illness.

In providing him with this tolerant, friendly haven, we find that the less the patient is reminded that he is separated from the outside world by prohibitions and restrictions, the more his readjustment is expedited. Consequently, as soon as the patient's progress permits, he is graduated from the hospital to the sanatorium, a separate building, where he is free from all restrictions except the friendly supervision of doctors and nurses.

It is not our purpose, however, to maintain the mentally sick patient in this individualized environment indefinitely. The process of recovery requires that he gradually win his way back until he is able to leave the artificially created atmosphere and reenter the world of reality. He might be content to rest forever in this (for him) comfortable state were it not for the emotional response which he develops toward the persons who provide this haven for him and who minister with such understanding to his wishes, conscious and unconscious.

SCIENTIFICALLY CONTROLLED FRIENDSHIP

This emotional response, which we think of as scientifically controlled friendship, we regard as the chief factor in the process of recovery. The hospital building and all the materialistic armamentarium are of little importance as compared with the personality relationships that exist between the patients and the members of the staff. Every doctor is familiar with the part that confidence plays in the treatment of his patients, and he is aware also of the influence, adverse or favorable, of relatives and friends on his patients. This familiar principle has been capitalized, elaborated and greatly reenforced by making it a matter of study and practice for not only the doctors and nurses but every employee of the institution. Every member of the personnel is interested not only in carrying out his particular routine function, but also in contributing something personal to this ruling principle. For example, the chef, who, in addition to being a good cook, is an expert tennis player, supervises the maintenance of the tennis court and plays regularly with the doctors and patients. The girls who work in the kitchen and dining room are among the best of the baseball players, and hurry through their work to participate in games.

This attitude on the part of the employees is secured, first, by extremely careful selection. Throughout the entire institution the employees must be of a superior type, people with whom the patients can associate without reluctance. Greater stress, however, is laid on the training of the employees after they become associated with us. Graduate nurses rarely obtain in their general hospital training an adequate understanding of the psychologic problems involved in the treatment of mental illness. Hence, education in psychiatric principles and the psychodynamic point of view is even more important than their general hospital training in developing the technic of tactful understanding of the delicate and subtle requirements of psychiatric nursing.

This process of education continues for the nurses and attendants as long as they are employed in the institution. An average of one hour daily is allowed them to attend lectures, conferences and study groups, and to prepare notebooks and to read and review selected books and periodicals from the hospital library.

The educational program includes training for not only the nurses and attendants but to a somewhat less technical degree all employees, including the kitchen help and office force. In addition to didactic work in psychiatric principles, these persons as well as all other employees attend regular conferences which integrate policies and activities of the group. As a result of this continued and intensive training, the whole staff of the institution is permeated with this spirit of cooperation and sympathetic insight into the aims of the hospital and the methods of carrying them out. They are thus prepared to apply the therapeutic principle of scientifically controlled friendship to the patients.

THE DAILY SCHEDULE

To be most effective this principle must be carried out in a systematic way, with specific application to the needs of each patient. To insure this, a schedule of assigned activities is written out and given to each patient at the beginning of each week. This not only informs the patient that he is being given individual consideration, but also maintains a continued plan of prescribed therapeutic attack. Preeminently, however, it gives opportunity for successive personal contacts through the prearranged scheduling of the various therapeutic tools of occupational therapy, recreation, physical therapy, reading, music and other creative efforts, rest, psychotherapy, study groups, etc. The friendly relationships which the patient forms in the course of his schedule transforms this daily plan from a progression from one unrelated unit of treatment to another into a continuous process of treatment facilitated by varied occupations. For example, Mary B's schedule on Wednesday at 10 o'clock reads "Occupational therapy—sewing on a quilt"; but Mary reads into this something far more personal and satisfying, because her doctor, who is interested in ships, drew for her pictures and diagrams of the many kinds of sailing ships. These Mary painstakingly traced on cloth of her own choosing and cut out white sails and appliquéd them on a blue sea with infinite care and devotion. This project was artistically conceived and executed by the patient as a gift for her doctor. The work began while she was lying listlessly in her bed, depressed and weeping, but as the quilt progressed, it necessitated contacts with other people; she must choose materials and use the sewing machine; finally she began to enter into the other activities of the hospital. Thereafter, her progress was rapid.

This whole plan of treatment is a continuous form of psychotherapy. It depends initially on the physicians' understanding of the patient's conflicts gained through frequent personal conferences. These interviews are not the casual contacts established in ward rounds, but are scheduled appointments.

The value of friendliness, kindness, personal attention and encouragement are recognized intuitively by almost everyone, but their scientific application as therapeutic tools is surprisingly rare. In our experiments and investigations we have attempted to carry this principle into all departments and to animate the patients' work with its purposive stimulus.

RECREATION

Organized recreational activity is a particularly effective medium for the application of this method of treatment. The director of recreation, who gives his full time to this work, skilfully leads the patient to express an interest in some sport or hobby which is utilized in developing a friendship, then in drawing the patient into some activity and finally in bringing him into a social situation in which he cooperates with other players. Thus, by an indirect method of free play, the patient is enabled to suspend temporarily, in varying degrees, his own intrapsychic conflicts and to accept a form of reality.

Our experiences, as well as the reports of other hospitals, have led us to believe that the chief therapeutic value of athletics is the social value, especially in a hospital where men and women mingle in games and contests. This adds a powerful socializing influence not possible in institutions limited to one sex or where the sexes are kept separate.

We have found it satisfactory to have both men and women play together on the indoor baseball teams which include practically every patient and every member of the staff. Although this is a group activity, its benefits can be specifically adapted to the individual. In the case of H. K., for example, baseball afforded him an opportunity to show some superiority. This patient's fantasy material showed that he had taken refuge in flight from reality because of his profound feelings of inferiority. He had visions of himself as God, the All-Powerful. It was discovered that although he had only one hand, he could catch more balls and knock more home runs than almost any other player. In this situation, H. K. was able to excel in reality and had no need to fantasy himself as successful.

Depending on their condition, the patients are encouraged to become captains of teams or directors of activities. The manner in which the responsibility therapy is applied is shown in the case of E. R., an apathetic, depressed hypo-active girl, who irregularly and without interest took part in the morning setting-up exercises. She was delegated to lead them, and immediately sought a book of instructions in the library, asked for suggestions from various members of the staff and assumed an active, aggressive leadership.

Many similar examples of how group recreation is applied to the individual problem could be cited. In order to interest every patient, a wide diversity of activities, including golf, tennis, croquet, shuffleboard and volley ball as well as many indoor games and contests, are scheduled. Swimming has been prescribed to overcome muscular rigidity, incoordination and negativism, with gratifying results.

In addition to the parties which are specifically prescribed, a patients' club functions weekly with a program consisting of a presentation of some interesting topic by one of the patients. This may be the elaboration of a current event, perhaps a description of the patient's business, occasionally the presentation of a hobby, a review of a new book or perhaps a musical program. This necessitates a certain amount of integration and membership and is considered a privilege. In the same way, outings, attendance at church, picture shows, lectures or concerts are prescribed as indicated by the individual's needs and preferences.

READING

Our experience with the prescription of reading extends over the last year. We are accumulating some data in this virgin field of therapeutics and are conservative in attempting to estimate results to date. The cardinal principle is the prescription of specific reading material rather than letting the patient pick up something at random or, as is more often the case, to do no reading at all. In a few instances the patient is asked to write a review of the assigned material. The books are chosen for their interest to the patient from what we know of his background and hobbies, and if possible for the therapeutic content. We have experimented with a good many types of magazines, fiction, biography, poetry and to a considerable extent with mental hygiene literature.

For many weeks after her admission, a hypomanic patient repulsed our psychotherapist, regarding his attempts to gain her confidence as a repetition of what she called the insincere attitude of her double-crossing relatives. Finally, he brought her a copy of Moby Dick and discussed with her at some length his interest in the story and its significance as an allegory. A few days later with self-deprecating bravado she gave him a longhand copy of the chapter called "The Lee Shore," with the explanation that she had awakened early one morning and copied it because she liked it so much. In that eloquent chapter she found a sympathetic description of her own flight, which relaxed her resistance and allowed a positive transference to begin.

OCCUPATIONAL THERAPY

Occupational therapy is almost as old as psychiatry, but much that has gone under that name has little or no therapeutic value. Work in the ward, including the care of the rooms, kitchen and laundry, and farm work may have a therapeutic value in isolated cases, when individually prescribed, but in general their use is of advantage only to the hospital administration. By no stretch of the conception can occupied time be considered as synonymous with occupational therapy.

The occupational therapist in the hospital follows the same procedure as was described for the recreational director, in first interviewing the patient at the earliest opportunity to determine his interests and capabilities. Then after consultation with the physician, the prescription is written for the patient, but it is through the personal influence of the therapist and the physicians that the patient is brought to attempt the work. We believe that the benefit to be derived from handicraft, aside from the socializing influence of the workrooms, is the opportunity of expression it affords the patient. This must be individualized to suit the requirements of each one: the schizophrenic patient finds in his work a contact with reality; the manic patient uses it as a propitious outlet for the discharge of energy; the introspective patient is given an opportunity for extraversion, and the sadistic patient works out with tools his antisocial impulses. We have found that it is of tremendous value to a patient with fragmented psyche to produce something, which, trivial as it may be in itself, represents to him a valuable personal contribution.

To recognize this, the occupational therapist must have a knowledge, not only of arts and crafts, but also of the psychiatric point of view. The physician too often regards the occupational therapist as just another attendant, and her teaching as an unimportant form of pastime for the patients. He should not only lend his active support, but should inform himself of the field, so he may intelligently prescribe specified types of occupation and evaluate their success in his patients.

MUSIC

Our experience with music as a part of the treatment has led us to conclude that in many instances it is not applicable (certain people have no musical interest or ability) and in other instances it is certainly detrimental (in hypomanic states and certain depressions in which the stimulated associations are too painful). On the other hand, it has proved to be beneficial to the majority of our patients through the opportunity it affords for self-expression and socialization in fireside group singing, instrumental music, quartets and solo work. This benefit has been most noticeable in persons convalescing from cyclothymic states, in reversible schizophrenic patients and in some psychoneurotic patients. In several instances we have provided instrumental training for unsocial schizoid persons, with improvement in their mental status and a fair degree of success in their musical efforts.

SPECIAL ACTIVITIES

The close personal relationships which the patient forms and the awakening interests which arise from them often result in rather novel departures from the customary procedure. The benefit derived from these special activities in individual cases more than warrants the additional supervision and planning which they require from the personnel. Provision, for example, is often made for patients to attend public lectures and entertainments, to organize nature study groups, to study French or stenography. In several instances, arrangements have been made for patients to take class work at a local college or the high school. Members of a boy scout troop in the city have been very cooperative in including some young male patients in their activities and in encouraging them to participate in swimming, boxing, etc. A college student has been employed to devote several afternoons a week acting as a companion and observer to a schizophrenic, unsocial, erratic lad about his own age.

Creative activities, such as sketching, painting and writing, are encouraged, with gratifying results, therapeutically if not always artistically. The preparation of a marionette theater has lately occupied the attention of a large proportion of the patients.

PSYCHOTHERAPY

All of the procedures described, rightly administered, gain their ends because of the psychiatric principles involved and are therefore a kind of psychotherapy. This, however, does not mean that more systematic technics of psychotherapy should not also be used. It is my conviction that every patient in a psychiatric hospital is capable and deserving of psychotherapy of some sort. For a few, the standard procedures of freudian psychoanalysis are desirable.

PHYSICAL THERAPY

These principles of treatment do not make it possible to dispense with the well established technics of physical, chemical and electrical therapy. Rather, they make these more effective, for the psychologic effects of the personal attention and physical manipulation are probably more beneficial than the physiologic effects.

Physical therapy is an assigned prescription for every patient daily. The modern psychiatric hospital is equipped with a hydrotherapeutic department for sedation, stimulation and elimination; with diathermy for the treatment of paresis; with provision for special dietary methods, and with necessary drugs, and the usual medical and surgical supplies and instruments. But chief reliance must not be placed on these, for the treatment of functional mental illness by physical devices is as illogical and unscientific as it is experientially futile.

SUMMARY

It has been the purpose of this paper to describe the modern hospital treatment of mental illnesses, a treatment based on the understanding of the psychologic conflicts of the maladjusted patient. The method consists in the establishment of an environment adapted to the individual patient's needs, which will give him greater comfort and freedom of expression than that from which he has come, and in the arrangement of a connected succession of personal contacts with understanding persons with whom the patient develops rapport in the course of a daily schedule of therapeutic activities. This relationship is capitalized in encouraging the direction of the patient's energies into more productive channels and, finally, in bringing about the carefully graded separation of the patient from his dependence on these aids and the facilitation of his return to the home environment by improved understanding.

ABSTRACT OF DISCUSSION

Dr. F. Garm Norbury, Jacksonville, Ill.: If something were not wrong with the ability to adapt to home, business and social life there would be no occasion for entrance for treatment in this field. The underlying situation and the precipitating cause in association with the physical condition demand first attention. Then, based on these conclusions, comes the plan for treatment. Perhaps this feeling may be best stated thus: A knowledge of the mental mechanisms involved plus the embodiment of the principles laid down in Weir Mitchell's "Doctor and Patient" and Peabody's "The Care of the Patient" have *meant more in formulating such a plan than anything else.* The organization carrying out the details of such a procedure is a most important part of such management. Close clinical supervision coupled with nursing experience means much for individualization. This is one of the main justifications of a private sanatorium. The opinion may be expressed that the apparently casual yet well considered conversation on the part of an experienced masseur or masseuse during a massage is often more valuable than the actual manipulation itself. The psychiatrist must know just what the situation and needs are with each particular case, how much has been accomplished and what direction the next approach must take. He must have acquired the art of approach and suggestion. He can then make use of the various measures described by Dr. Menninger. Knowledge, art, tools—these three cannot be separated when therapy is considered. Grasp and insight in the psychotic, poise and well considered emotional response in the neurotic come from the establishment of normal chains of thought and of normal outlook. They come from the development of or restoration of confidence; from the ability to see things as they are, to meet things as they exist. The actual coming is more often the result of personal effort and conversation by the physician than anything else. Any type of therapeutic aid which he can employ to help in the preparatory stage is of value and should be utilized in the way Dr. Menninger has described.

Dr. Thomas J. Heldt, Detroit: Successful response to the therapeutic aids to which Dr. Menninger has called attention is largely dependent on individualization and personalization, not only on the part of the patient but also on the part of the physician and other hospital employees. The importance of these aids is such that they may well be extended to general hospitals in which nervous and mental patients are treated. I have had some nine years of experience in applying to patients in such a general hospital most of the therapeutic measures mentioned. I can corroborate their effectiveness, so clearly outlined in the cases reviewed by Dr. Menninger. I would emphasize that in the carrying out of these therapeutic aids repeated call is made on lay personnel, some trained, some semitrained, and still others largely untrained. In this regard I have found it advantageous to arrange ten-minute explanatory talks daily by the floor physician to orderlies and maids and to others of the lay personnel mentioned. I have found also that the bringing of a nervous and mental patient into a general hospital is in itself an environmental setting of importance. The helpfulness of such setting is reflected not only in the favorable reactions of the patient but also in the newly conditioned responses of the hospital superintendent, the lay personnel and our medical associates.

Dr. George S. Johnson, Denver: I should like to direct attention to the point Dr. Menninger made about the individualization of the patient. In general hospital experience one finds that the patient comes into the hospital and at once feels he has a physician who is attending him, but in the psychopathic hospital and in the psychiatric institution the tendency is to feel that he is in the hospital for the time being and is merely waiting for the time when he can go out, and that recovery is a matter of time. Dr. Menninger has called attention to the systematic application of the contact he makes in the hospital. I find in the hospital in Denver that the explanation of the dynamic concept not only to the patient but to the entire personnel is of great value in creating that which Dr. Menninger has brought out in his paper.

LABORATORY INVESTIGATIONS AS AIDS IN OTOLARYNGOLOGIC DIAGNOSES

L. W. DEAN, M.D.
ST. LOUIS

The cytologic examination of the nasal discharge is, in my judgment, an important procedure with every patient with a nasal lesion. I should feel that my examination was incomplete if this had not been done. The cytologic examination of the discharge from the ear, while not so important, has a distinct advantage. If on examination of the nasal discharge it is found to be almost all mucus with very few cells, that means one thing; if the fluid contains practically no mucus, as in cerebrospinal rhinorrhea, that would suggest another thing. The presence of many polymorphonuclear neutrophils in the discharge taken from the neighborhood of the ostium of the sinus indicates infection. Even to a layman the presence of pus cells will mean something. When red blood cells are found they have clinical significance. The presence of degenerated epithelial cells without any blood cells is of decided clinical significance.

Certainly it is of great importance to have information regarding the number of eosinophils present in the nasal discharge. While the increase in the eosinophils does not necessarily mean an allergic condition or the absence of eosinophils exclude allergy, the presence or the absence of these cells is suggestive. Only a few cases that we have seen with a marked nasal eosinophilia have proved not to be allergic. Many cases in which there has not been an increase in eosinophils have been found to be allergic. Repeated examinations of nasal smears will often reveal a marked increase in the eosinophils which was not present on former examinations.

The cytologic examination of the discharge from the ear should be made at the time of myringotomy if possible. When macroscopic blood is secured at myringotomy, a cytologic examination may reveal many polymorphonuclear neutrophils. The presence of these cells in the blood indicates an otitis. The state of degeneration of the polymorphonuclear neutrophils found in the discharge from the ear suggests the severity of the infection. The greater the degeneration of these cells, the more active is the process as a rule.

In a large number of patients with purulent otitis, many eosinophils have been found in the nasal and nasopharyngeal discharge, but as yet we have not discovered a discharge from the ear with many eosinophils.

The discharge from the nose is examined by taking a cotton carrier and touching the neighborhood of the ostium of the sinus. The material adhering to the cotton is spread on a slide so as to leave strands of mucus

---

From the Department of Otolaryngology, Washington University School of Medicine.

Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

on the slide, if some are present. The strands of mucus in the nasal discharge act like fish-nets and collect the cells that are present in the discharge. Similar preparations are made from the ear, the discharge being taken from the myringotomy wound immediately following the incision of the drum head or from a perforation in the drum head.

The film on the slide is gently fixed with heat, the slide is flooded with Wright's stain for one minute, an equal quantity of buffered distilled water is added for three minutes, and the slide is washed with distilled water and air dried and is ready for microscopic examination. It is important to know that the Wright's stain is perfect. This stain deteriorates in a few weeks. Only stain that is known to be good by actual test should be used; otherwise, the results will be disappointing.

Fluid that is aspirated may be examined in the same way, or it may be examined as are the washings from the sinuses and from chronic discharging ears. The fluid secured is placed in a container and thoroughly shaken in order to separate the cells from the strands of mucus. The material is then placed in a centrifuge tube and centrifugated for a few minutes at a slow speed. This precipitates the mucus threads, but does not throw down the cells. The fluid is decanted, placed again in a centrifuge tube and centrifugated at a rapid speed for two or three hours. This precipitates the cells as a compact mass in the apex of the centrifuge tube. The fluid is drawn off and the precipitated mass hardened with formaldehyde. Before the fluid is placed in the tube, a flattened wire bent to fit the bottom of the tube is inserted so that the mass is in the bend of the wire. After the mass is hardened it can readily be removed from the tube by means of this wire. It is then mounted in paraffin and sectioned and stained as tissue.

It has happened that in a case of an unsuspected malignant condition in a maxillary sinus, groups of cancer cells were found by this method. This made the diagnosis of carcinoma.

When the washings in cases of otorrhea are studied, some of the material precipitated should be examined under the microscope for cholesterol crystals before it is hardened. The presence of cholesterol crystals plus fatty degenerated epithelial cells makes the diagnosis of cholesteatoma. This procedure often reveals the presence of cholesteatoma which was not found by examining the fluid without centrifugation.

The chemical test for cholesterol on the discharge from the ear in chronic purulent otitis media is still an uncertain procedure. The fluid from acute otitis gives the reaction. The exact quantitative test indicative of cholesteatoma has not been determined. Chemical tests have the advantage in that they determine the presence of amorphous cholesterol as well as the crystals.

Roentgen examination of the nose and ear has become an important factor in diagnosis. My impression is that roentgen examination has been at least sufficiently emphasized. To me a thorough clinical history and an excellent examination are far more important than the roentgen procedure. At any rate, in nasal sinus disease one is not justified in making a diagnosis of an infection of the sinuses because the roentgenogram shows that the lining of the sinus is thickened. The lining of a sinus is often thickened because of an allergic condition, and in the early stages of nephrosis the thickening is due to a pure edema which is part of the generalized edema of the patient. Roentgen examination of the nasal sinuses together with a cytologic study of the discharge should give definite information. Certainly, many patients who were thought to have infected sinuses requiring radical operation have been treated successfully by conservative treatment when the cytologic study plus the history has shown that a thickened lining was an edematous process and not an infected membrane.

In infants and young children I have the roentgen examination made first. This is done to determine whether or not a given sinus is present, and, if present, whether or not it has clinical significance on an anatomic basis. Years ago Dr. Mosher remarked that nasal sinuses in children were precocious. In older children and in adults roentgen examination is of the greatest help in clearing up obscure points regarding pathology. It should be made only after the securing of a thorough history and after a careful clinical examination. For many years some of us did laryngologic work without the use of the x-rays, and by means of a good history plus a thorough study of the case we made an exact diagnosis. Perhaps our patients were better off than those who are now operated on, because an x-ray picture shows a slight thickening of the lining of the sinus. At any rate, the x-rays should be used to clear up those points in diagnosis which are not definite after a thorough clinical examination has been made. The roentgenologist should have before him the history and clinical findings and a statement of the information that is desired.

Certainly x-ray pictures of the maxillary sinuses are bound to be misleading unless their interpretation is helped by a good history and a clinical examination.

Differential examination of the blood, particularly with the Schilling method in otolaryngologic cases, is a procedure that should be done by experienced persons. The recognition of cell types and the evaluation of the differential blood count require technical as well as clinical experience. A proper differential count of the blood may in itself make the diagnosis. In the study of infections, it may be the deciding factor as to whether operation is necessary or whether it should be deferred.

It should be remembered that the otolaryngologist sees not only cases of agranulocytosis, but rarely cases of infectious mononucleosis and more commonly cases of lymphatic reactions following infections about the nose and throat. He also sees cases of myeloblastic leukemia, aplastic anemia, myelogenous leukemia and lymphatic leukemia. The early symptoms of these diseases may manifest themselves first in the throat.

Ulcerative as well as hemorrhagic lesions in the nose and throat may be only symptoms of a primary blood dyscrasia, the diagnosis of which is possible only by a careful differential blood count.

Agranulocytosis is a disease characterized by marked depression of the granular elements in the blood with marked leukopenia. There are various theories as to its cause, and one is that it is a primary disease of the bone marrow with a special predilection for the glandular elements. The diagnosis of this disease can be made only by careful differential studies of the blood. The clinical picture of this disease may not differ from that of myeloblastic leukemia, the main difference between the two being made on a differential count of the blood, which in myeloblastic leukemia shows myeloblasts, whereas in agranulocytic angina there are no blast cells. In the same way, the differential diagnosis between a lymphatic reaction secondary to infection about the nose and throat and lymphatic leukemia is made by the finding of lymphoblasts in lymphatic leukemia.

Aleukemic lymphadenoses and myeloses can be differentiated only by careful differential counts of the blood. It requires experience to recognize these early cells as lymphoblasts and myeloblasts. In aplastic anemia, the earliest symptoms may be referable to the throat. It is characterized by marked diminution in all three blood elements: leukocytes, platelets and red cells.

Often a diagnosis is made of monocytic angina with a temporary rise in monocytes together with a rise in lymphocytes. This does not constitute a diagnosis of monocytic angina, and really represents only a temporary rise in monocytes, which is not uncommon with infections in the tonsils, and the lymphatic reaction persists longer than the monocytic reaction.

Probably the greatest value in the Schilling differential count of the blood for the otolaryngologist is the study of infections. The interpretation and evaluation of the degree and seriousness of the infection can be best measured by the differential count of the blood. Prognosis is closely associated with differential changes in the blood. An increase in the Stabkernige cells in the Schilling differential count of the blood is a degenerative picture, and in infections of the nose and throat is not of serious moment in itself. With an increase in the severity of the infection, younger cells, so-called Jugendliche cells, appear in the blood stream and classify the picture as regenerative. With further progression of the infection, more serious regenerative pictures are seen, with the presence of myelocytes. When myelocytes are found in the course of an infection, they are always to be considered seriously. The time to operate may be decidedly influenced by a differential count of the blood. The progress following operation or other treatment can be most accurately determined by the differential count of the blood. The onset of complications can also be measured accurately.

In the diagnosis of tuberculous lesions of the nose and throat, the Schilling differential count of the blood, together with the subcutaneous tuberculin test, is invaluable. An increase in the number of Stabkernige cells may be present in any infection and is always present in active tuberculous lesions. Syphilitic lesions, unless secondarily infected, do not show an increase in Stabkernige cells; neither do tumors unless they are infected. In a suspicious tuberculous lesion of the nose and throat, with an infectious blood picture as evidenced by an increase in the number of Stabkernige cells, the blood picture can be modified by the use of tuberculin.

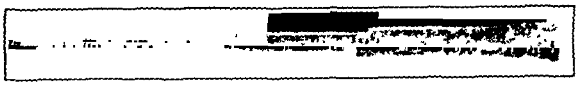


Fig. 1.—Glass sleeve swab protector for collecting nasal smears in position for use. The whole is inserted through a nasal speculum into the nose. The flare on the end of the outer tube protects the inner one from contamination. C. S. Linton.

After the injection of 10 mg. or less of old tuberculin into a tuberculous lesion that is not healed, there is an increase in the number of Stabkernige cells in twenty-four or forty-eight hours, or a drop in lymphocytes. A negative reaction of the blood following 10 mg. of old tuberculin excludes tuberculosis.

As I view it, the exact determination of the blood findings is a procedure that requires experience, both in making the differential count and in its interpretation, and should be done by one trained in hematology as well as in clinical medicine. While the otolaryngologist may be able to make a fairly accurate differential count of the blood in most of the ordinary infections, yet my own judgment is that when it is necessary to depend on blood findings to differentiate between the blood dyscrasias and infection, to determine the exact significance of the blood picture in severe cases of sepsis, to differentiate between lymphatic reactions and monocytic anginas or infectious mononucleosis or to determine the presence of active tuberculosis, one should depend on an expert for the examination of the blood.

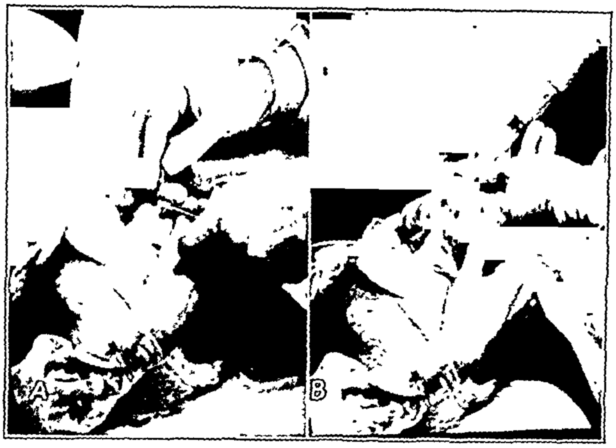


Fig. 2.—*A*, trocar inserted through the inferior meatus into the maxillary sinus. *B*, a Luer syringe attached to the trocar, containing physiologic solution of sodium chloride.

The examination of material secured at biopsy should be made by the surgeon who is in charge of the case. The surgeon should be well grounded in pathology. If he has this knowledge, he should be best prepared, because of his clinical conception of the case, to make the diagnosis. Often in diseases of the larynx and even in lesions of the tongue, when they are malignant, the piece secured at biopsy will not show the malignant process. The surgeon would not be led astray by the microscopic picture, but should be guided by the results of his history and examination and make a second or even a third biopsy before coming to a definite conclusion.

If a person is not sufficiently grounded in pathology, he should look at the tissue with a pathologist and give to him the benefit of his clinical knowledge of the case.

In making bacteriologic studies in infections of the ear, nose and throat, it is important to secure the material for investigation in a proper way. The material from the ear should be secured, if possible, at the time of myringotomy. The next best time to secure the material is when and if an operation is performed on the mastoid. Routine cultures of the pus in mastoid cavities give a large percentage of negative results, especially in infants; consequently, pieces of tissue for culture should be sent to the laboratory in addition to the cultures made from the discharge. The specific organism responsible for the infection should be present in the tissues. Such a procedure will almost always give a positive result if the bacteriologic examination is thorough. In the same way, the lining of an infected nasal sinus is the best material from the sinuses for bacteriologic study.

In work on the nose and throat it is advisable to have available to the resident staff an incubator so that the cultures may be prepared immediately.

The objection to making cultures from discharges from the ear after myringotomy or spontaneous perforation is that the contaminating organisms often overshadow and prevent the finding of the real etiologic factor.

It is common to find type III pneumococcus at the time of myringotomy and then to fail to find it in repeated examinations made on the discharge from the ear, and then to find it again at the time of operation on the mastoid.

In making a bacteriologic examination of the nose, it is necessary to use a double glass sleeve containing the cotton on a probe (fig. 1) in order to get the culture only from the point that it is desirable to study. If a cotton swab is inserted into the nose through the nasal speculum, it becomes contaminated before it reaches the area to be investigated. The examination of the middle meatus of normal noses in midsummer by such a procedure has shown 80 per cent of them to be sterile. This finding can be secured only if a double glass sleeve or some protecting mechanism is used with the cotton carrier on its way in and out of the nose.

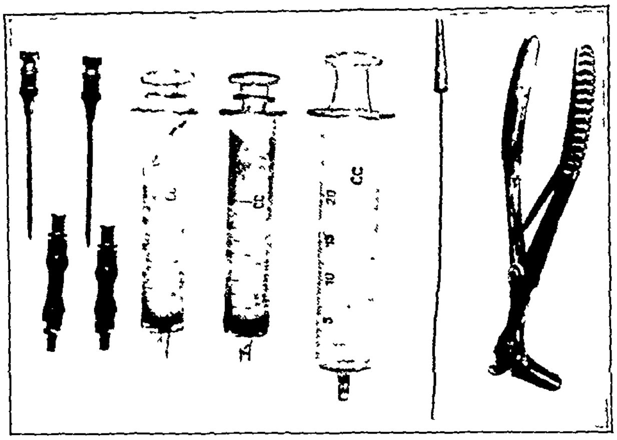


Fig. 3.—The trocar and syringe used in obtaining fluid for examination.

In making cytologic and bacteriologic studies of the nasal sinuses, it is necessary to aspirate the contents of the sinus or, if a fluid is not secured on aspiration, to introduce into the sinus a little sterile physiologic solution of sodium chloride, swish it around in the sinus and then aspirate it. The fluid thus secured is used for study. A good method of doing this in infants and older children is to insert a trocar through the inferior meatus into the maxillary sinus under gas anesthesia (fig. 2 *A*). When this is done the operator should have before him in an illuminated box the x-ray picture of the sinus in order to know the exact relationship of the floor of the maxillary sinus to the inferior turbinate. After the trocar has entered the antrum, the stylet is withdrawn. Using a rubber connection, a Luer syringe containing about 4 drachms (15 cc.) of physiologic solution of sodium chloride is attached to the trocar (fig. 2 *B*). A part of the physiologic solution of sodium chloride is injected into the antrum and then aspirated into the barrel of the syringe. Frequently pus so thick that it will hardly pass through the cannula is aspirated. (Figure 3 shows the trocar and syringe used in this procedure.) The material thus secured from the maxillary sinus is not contaminated by the contents of the nose and serves the excellent purpose of furnishing material for bacteriologic and cytologic study.

Search must be made in all cases of infection of the ears, nose and throat for both aerobic and anaerobic organisms. The search for anaerobic organisms occasionally gives unlooked for results.

When acid-fast organisms resembling Bacillus tuberculosis are found in the material from the ear, it is necessary to make injections into guinea-pigs in order to determine definitely whether or not it is Bacillus tuberculosis. Even if this organism is found in the discharge from the ear, if the patient has active pulmonary tuberculosis it may not be a case of tuberculous otitis, but the organism may be there as a contaminant.

Blood cultures and cultures from the spinal fluid are often indicated. In cases of suspected otitic or laryngologic sepsis, the agglutination tests for typhoid, paratyphoid, melitensis, typhus, meningococcus and tularemia will occasionally show that the infected ear is not responsible for the serious illness of the patient.

In the same way a careful search for malaria in the blood in a case of suspected thrombophlebitis in a lateral sinus will rarely give positive results.

The Kahn precipitation test and the Wassermann complement fixation test should be used as routine measures.

ABSTRACT OF DISCUSSION

Dr. Harris P. Mosher, Boston: I have found the Schilling index valuable in interpreting the course of infections and in evaluating them. It often hastens operative intervention, and it frequently helps in making a prognosis. Since the advent of agranulocytic angina, the differential blood count has come to the front. It alone makes the diagnosis. But long before this disease was described there were the leukemias and various blood dyscrasias which show their first signs in the throat. I have a feeling that any throat condition which is not definitely suppurative, and in which biopsy is not promptly positive, calls for a differential blood count. From the patient's standpoint, I think the physician who is not in intimate touch with a laboratory should take a routine culture in his throat cases and perhaps in every case make a differential blood count. Dr. Dean said nothing about epidemic sore throat. The laboratory a few years ago isolated the organism of this disease and has lately made a serum available. This is the only hope that has appeared in this dread disease. Dr. Dean's statement that one should not depend on swabs for detecting bacteria but should hunt in tissue specimens interested me especially. He said that if one does not find the bacteria it is because one does not hunt long enough. This points a way out. It may mean a solution in cases of infantile diarrhea associated with so-called mastoiditis.

Dr. Burt R. Shurly, Detroit: Dr. Dean's method of obtaining specimens for cytologic and bacteriologic studies without contamination is deserving of practical application in the office and in the hospital. The early knowledge of the culture findings, the chemical changes in the blood, the roentgen study and the study of the nasal discharge greatly influence the early choice of proper therapeutic measures. But with these laboratory aids easy of access it is necessary to remember that they, including the roentgen examination, are not without a considerable percentage of error, and that the basis of careful diagnosis must be common sense, good judgment, and a study of the individual. The history and clinical observations must remain paramount. The influencing factors of general systemic disease, the study of resistance to infection and the virulence of the micro-organisms must not be overlooked in evaluating the mystic maze of laboratory aids and technic. In the scientific fervor for chemical, cytologic and bacteriologic evidence one must not forget that the patient is not a guinea-pig but a member of the human family with an individuality.

Dr. I. S. Kahn, San Antonio, Texas: For about a year I have studied the nasal smears in every person with vasomotor rhinitis coming to my office for diagnosis or treatment, and also in borderline chronic cases referred to me by rhinologists for decision as to the existence of nasal allergy. Naturally, easily diagnosed cases of irritating lesions such as fissures, ulceration, foreign bodies, parasites or impingement, that might produce eosinophilia were not referred, and I have no records on such lesions, and there are none in the literature. In every case showing nasal smear eosinophilia that I have seen, a definite allergic hypersensitivity was ultimately determined to be the sole, or a complicating factor. This was found *unexpectedly in several* cases of so-called chronic sinusitis referred by rhinologic friends to be used as controls for this work. In *my experience to date, within the limitations* of the irritating conditions mentioned, every case of nasal eosinophilia above 3 per cent has meant allergy and has been proved either by significant positive skin tests or environmental study, when positive skin tests were not secured, a condition now recognized as not rare by practically all allergy workers. The cytology of infections in the known allergic cases included in this study has shown also that the changes in the allergic state may be considerably modified by infection, and when such infection has occurred in an allergic individual, as shown by a complicating polynuclear cytosis, or by a polynuclear cytosis replacing previous eosinophilia, attention to proper treatment has greatly improved the results of therapy based on allergy alone, a matter of decided importance. In my experience, the hay fever cases temporarily failing to show eosinophilia are at times the cases complicated by infection, cases of extreme severity in which the allergic diagnosis is unquestionable, but in which the discharge is purely watery and there are no cells, and cases seen in a state of temporary quiescence. A case of feather, house dust or pollen sensitivity, with definite nocturnal or early morning symptoms of considerable severity, may be totally quiescent allergically and symptom free by afternoon after several hours of freedom from antigen contact, and the true state of affairs missed by both the examiner and the laboratory. In those cases limited principally to nocturnal or early morning activity, the material can be collected on a roughened cellophane handkerchief in the home as, sealed in a jar, it will remain fit for examination for several hours. For the allergy worker these routine smear tests are of decided value in proving the existence of the condition of hypersensitivity when the initial routine diagnostic skin tests are negative, leading to further investigation either by further skin testing or environmental study, or, a matter of as great importance, to the detection of unsuspected complicating infections requiring additional appropriate treatment.

Dr. George Piness, Los Angeles: The discussion of Dr. Dean's paper leads one to believe that this work is new, but a similar study has been carried on in my laboratory for some fifteen years, and in discussion with Dr. Dean and others, eosinophils were suggested as being characteristic but not always pathognomonic of allergic disease. The eosinophil picture was *suggested as an aid in the differential diagnosis* of allergic and other otologic diseases. The laboratory observations should not be used alone for diagnostic purposes but merely to substantiate diagnosis made from the clinical history and physical signs. In a series of 159 children studied at the allergic clinic of the Children's Hospital of Los Angeles, routine nasal smears were made. Of this group, fourteen were diagnosed as nonallergic prior to the examination by the otologist. Nasal smears and washings in this group revealed eleven negative as to eosinophils and three positive, bringing out the fact that allergic disease is readily recognized and in the questionable cases eosinophil studies on nasal smears and washings are of great value.

Dr. L. W. Dean, St. Louis: In making cytologic examinations of nasal and ear discharges, sometimes the observations are not what are expected. For one year I have looked for an increase of eosinophils in ear discharges. In those cases that are definitely allergic, in which there is an abundance of eosinophils in the nasal discharge, the ear discharges have been disappointing so far as the eosinophils are concerned. Many cells have been found which stain with eosin, but they are not granular. They are not eosinophils. In connection with the use of tissue secured at operation in determining the micro-organisms present, as mentioned by Dr. Mosher, the material secured at the time of operation is macerated and used for making cultures. The viable organisms should be in the tissue even if absent from the pus. I appreciate Dr. Shurly's point that clinical judgment is what counts. That goes without saying. It will always be the most important thing. Regarding eosinophilia in the nasal discharge being pathognomonic for allergy, as suggested by Dr. Kahn, I will say that this is not in accordance with what I have found. It is not safe to make a diagnosis of allergy on the basis of an increase in eosinophils in the nasal discharge, nor does the absence of eosinophils exclude allergy. In a case of digitalis poisoning, an enormous number of eosinophils were found in the nasal discharge. When the digitalis was discontinued, the eosinophils disappeared. When it was again administered, they reappeared. In a case of carcinoma of the maxillary sinus no eosinophils were found the day following operation; the second day only a few were found but on the third day there were great clouds of them in the nasal discharge.

CONVULSIONS IN CHILDHOOD

STUDY OF FOUR HUNDRED AND NINETEEN CASES

M. G. PETERMAN, M.D.
MILWAUKEE

This study concerns the selected case records of 419 children under 15 years of age who were admitted to the Milwaukee Children's Hospital because of convulsions. The selection of private and charity cases is limited to include only those in whom every reasonable effort was made to establish a diagnosis (table 1). This series represents 1.9 per cent of the total admissions (22,036) to this hospital in the last nine years. The small number of cases (28) listed in the tables under "Cause unknown" represent patients in whom it was impossible to establish a diagnosis after utilizing all of the facilities available in our institution. While they are an admission of the limitations of our ability, they are included without hesitation as a realization of some of the unsolved problems in pediatric neurology.

A great deal of clinical study and careful animal experimentation have provided a certain understanding of the mechanism of the convulsive state. While the precipitating factors and the entire mechanism of a convulsion are not clear, there are certain features which are rather generally accepted. Most convulsions are *probably immediately due to a cerebral vasomotor* reaction which produces first cerebral anemia (tonic stage) followed immediately by a cerebral congestion and edema (clonic stage) (Foster Kennedy[1]). Compression of the carotids and vagi in human subjects has produced clonic spasms and loss of consciousness (Leonard Hill[2]). In experiments on cats, cutting off

Table 1.—*Entire Series*

Diagnosis	Number	Per Cent
Epilepsy (idiopathic)	144	34.4
Acute infections	90	21.4
Spasmophilia or tetany	67	16.0
Cerebral birth injury or residue	55	13.1
Cause unknown	28	6.7
Miscellaneous	35	8.4
Total	419	100.0

From the Department of Pediatrics, Marquette University Medical School, and the Milwaukee Children's Hospital.

Read before the Section on Pediatrics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

[1] Kennedy, Foster: Epilepsy and the Convulsive State, Baltimore, Williams & Wilkins Company, 1931.

[2] Hill, Leonard: The Physiology and Pathology of the Cerebral Circulation, London, J. & A. Churchill, 1896.

the cerebral and medullary circulations was followed by unconsciousness, bladder and rectal evacuation, severe tonic convulsions and then flaccidity. A return of the circulation was followed by clonic convulsions (Pike and others[3]). "Convulsive attacks which follow temporary cerebral anemia can be regularly prevented by an artificially produced cerebral circulation of saline solution during the compression of the innominate and left subclavian arteries" (cats) (Elsberg and Stookey[4]).

The significance of cerebral edema in epilepsy has been known since the time of Hippocrates and has been more recently substantiated by the works of Alexander, Elsberg and Pike, Dandy, Mixter, Wartenberg, Carpenter, Fay and others.[5] The knowledge of this edema has been utilized in the treatment of epilepsy by dehydration (Dandy, Fay, McQuarrie and Peterman[6]). Possibly the effectiveness of the ketogenic diet is due to the dehydration it produces (Peterman[7]). It has long been known that the ketosis (Wilder[8]) is not the effective factor.[9] However, the peculiar susceptibility of the idiopathic epileptic patient to the periodic recurrence of his seizures, which are often of stereotyped character, has not been satisfactorily explained.

The high incidence of convulsions in childhood, particularly between the ages of 6 and 36 months, has been the subject of a great deal of speculation. There would be no particular advantage in reviewing the various theories that have been proposed to explain this frequency. Among them are the "incomplete development of the cortex," "incomplete myelinization of the nerves," "suppression of the cortical motor system" and many others.[10] With the present knowledge of the incidence and possibilities particularly of cerebral birth injury and hemorrhage, spasmophilia, epilepsy and acute infections, these theories are superfluous for all practical purposes. The infant and the child are subject to certain diseases, which in themselves are the exciting factors or indirect causes of convulsions. When the period of incidence of these diseases is passed, and thus the exciting causes are removed, the incidence of convulsions is greatly lowered. In most cases a thorough study will reveal the cause of the convulsion. Such a study also eliminates cutting of teeth, enlarged thymus, adhesions of the foreskin or clitoris and worms from the list of causes. There are no such diagnoses in this series.

TABLE 2.—*New-Born (to 1 Month)*

Diagnosis	Number
Cerebral birth injury	3
Acute infection	4
Total	7

It is our practice to obtain as complete a history as possible. Since in many cases of convulsions the physical findings after the attack may be entirely negative or normal, a great deal of emphasis must be laid on the history. The family history, if complete and reliable, will indicate whether or not a hereditary defect may be anticipated. The character of the pregnancy, the time of gestation and the type of labor will indicate whether the child has possibly had an intracranial injury. A description of the subsequent mental and physical development is of great value in determining the relationship of abnormal findings to the convulsions or vice versa. While the type and character of the convulsions may sometimes be observed, one is entirely dependent on the history for the frequency. About 75 per cent of our patients had convulsions in the hospital; thus in 25 per cent we were dependent on the history alone. The patients with idiopathic epilepsy have notoriously few seizures during a short period in the hospital (Peterman[11]).

TABLE 3.—*From 1 to 6 Months*

Diagnosis	Number	Per Cent
Acute infections	18	33.3
Cerebral birth injury	10	18.5
Spasmophilia	9	16.6
Gastro-enteritis	3	5.6
Hydrocephalus	2	3.7
Meningitis (meningococcus)	1	1.9
Unknown	11	20.4
Total	54	100.0

PRESENT SERIES

As stated, the convulsions of childhood are directly due to or associated with certain diseases, and these diseases are particularly prevalent at certain ages.

TABLE 4.—*From 6 to 36 Months*

Diagnosis	Number	Per Cent
Acute infection	52	35.3
Spasmophilia	51	34.7
Cerebral birth injury residue	17	11.5
Epilepsy (idiopathic)	10	6.7
Brain injury (traumatic)	2	1.4
Meningitis (meningococcus)	2	1.4
Hydrocephalus	2	1.4
Pertussis, sequel (intracranial hemorrhage)	1	0.7
Gastro-enteritis	1	0.7
Acute encephalitis (measles)	1	0.7
Encephalitis residue	1	0.7
Intracranial vascular lesion	1	0.7
Unknown	6	4.1
Total	147	100.0

Therefore, the convulsions are best classified according to age. Such a classification has been developed in this study and has proved to be of great clinical value (tables 2, 3, 4, 5 and 6). The small number of infants in the first month of life is characteristic of most children's hospitals.

The largest number of cases, 34.4 per cent, were diagnosed as idiopathic epilepsy. It is rather well known that most convulsions in children, particularly after 3 years, are due to epilepsy. However, this is no justification for the common error of making this diagnosis without further investigation. The diagnosis of idiopathic epilepsy is made by exclusion and only when all organic possibilities have been eliminated. In this paper the petit mal seizures are included as convulsions.

---

[3] Pike, F. H.; Guthrie, C. C., and Stewart, G. N.: J. Exper. Med. **10:** 490, 1908.

[4] Elsberg, C. A., and Stookey, B. P.: Studies on Epilepsy: I. Convulsions Experimentally Produced in Animals Compared with Convulsive States in Man, Arch. Neurol. & Psychiat. **9:** 613 (May) 1923.

[5] Hippocrates: The Sacred Disease, translated by F. Adams, New York, William Wood & Company, 1886. Elsberg, C. A., and Pike, F. H.: Am. J. Physiol. **76:** 593 (May) 1926. Alexander, W.: Lancet **2:** 932, 1911. Dandy, W. E.: Bull. Johns Hopkins Hosp. **34:** 245 (Aug.) 1923. Mixter, W. J.: Three Cases of Focal Epilepsy, Arch. Neurol. & Psychiat. **9:** 402 (March) 1923. Wartenberg, R.: Ztschr. f. d. ges. Neurol. u. Psychiat. **94:** 585, 1924-1925. Carpenter, E. R.: Am. J. M. Sc. **173:** 333 (March) 1927. Fay, T.: Am. J. Psychiat. **8:** 783 (March) 1929.

[6] Dandy, W. E.: Am. J. Psychiat. **6:** 519 (Jan.) 1927. Fay, T.: Epilepsy and the Convulsive State, Baltimore, Williams & Wilkins Company, 1931. McQuarrie, I.: Epilepsy in Children, Am. J. Dis. Child. **38:** 451 (Sept.) 1929. Peterman, M. G.: Am. J. Psychiat., to be published.

[7] Peterman, M. G.: Tr. Second Internat. Cong. Pediat. Stockholm, 1930, vol. 11.

[8] Wilder, R. M.: Mayo Clin. Bull. **2:** 307, 1921.

[9] Peterman, M. G.: The Ketogenic Diet in Epilepsy, J. A. M. A. **84:** 1979 (June 27) 1925.

[10] Sachs, B., and Hausman, L.: Nervous and Mental Disorders from Birth Through Adolescence, New York, Paul B. Hoeber, Inc., 1926, p. 584.

[11] Peterman, M. G.: The Ketogenic Diet, J. A. M. A. **90:** 1427 (May 5) 1928.

Twenty-one and four-tenths per cent of the convulsions were caused by acute infections. Under this heading are included the acute infections of the upper respiratory tract, otitis media, the onset of pneumonia and the onset of some infectious diseases.[12] The convulsion is probably the response of the organism to the invasion of the blood stream or meninges by the microorganisms (septicemia), or to the dysregulation of the water balance which many infections produce (cerebral edema).

TABLE 5.—*From 3 to 10 Years*

Diagnosis	Number	Per Cent
Epilepsy (idiopathic)	81	57.0
Cerebral birth injury residues	18	12.7
Acute infections	15	10.6
Tetanus	4	2.8
Residue brain injury (accidental)	2	1.4
Encephalitis, residue	2	1.4
Gastro enteritis	2	1.4
Jacksonian epilepsy (no evidence injury, infection or tumor)	2	1.4
Poliencephalitis (Strumpell Marie)	2	1.4
Spasmophilia	1	0.7
Meningitis	1	0.7
Brain tumor	1	0.7
Meningovascular, syphilis congenita	1	0.7
Hydrocephalus, congenital	1	0.7
Congenital cerebral defect	1	0.7
Unknown	8	5.7
Total	142	100.0

Spasmophilia caused the seizures in 16 per cent of the patients, and 76 per cent of these children were between 6 and 36 months of age. There were 9 infants between 2 and 6 months of age in whom the diagnosis of infantile tetany or spasmophilia was made. In 5 the blood serum calcium on admission was 7.9, 6.3, 7.5, 7.5 and 7 mg., respectively. In the remaining 4 the diagnosis was made on the basis of convulsions with carpopedal spasm, positive Chvostek and Trousseau signs and positive Erb electrical reactions. A discussion of tetany in young infants is not in order in this paper.

Thirteen and one-tenth per cent of the patients had convulsions on the basis of cerebral birth hemorrhage or injury or a residue of these lesions. A number of investigators have demonstrated that trauma can render an area of the brain unstable. Of 25,000 soldiers who suffered injury to the brain during the World War, in 4 per cent convulsions subsequently developed.[13] The studies of Sharpe and Maclaire, M. Hines Roberts, L. Howard Smith and others on the spinal fluid of new-born infants have demonstrated a probable injury in between 10 and 15 per cent of all infants.[14] The effect of this birth traumatization has been well presented in the classic works of Ehrenfest, Ford and others.[15] Whether the birth traumas produce immediate symptoms or not, they are capable of lowering the threshold of irritability (Timme)[16] or, by subsequent contraction of scar tissue (Foerster and Penfield),[17] of producing convulsions.

In 6.7 per cent of the patients the diagnosis could not be established.

The remaining 8.8 per cent constitute a miscellaneous group in which tetanus occurs the most frequently.[7]

CLASSIFICATION ACCORDING TO AGE

New-Born Infants (to 1 Month) (7 Cases).—While this series is small, the findings coincide essentially with those of larger groups in that cerebral birth trauma is a most common cause of convulsions.[18] The explanation was given previously. With a history of prematurity, prolonged or difficult labor or cyanosis at birth, a subsequent convulsion should immediately suggest the possibility of a birth injury. A spinal puncture is of the greatest value in diagnosis. If the delivery has been uneventful and a fever or other signs of infection precede the convulsion, another cause may be considered. A leukocyte count and possibly a blood culture will be of assistance in making the diagnosis.

Infants from 1 to 6 Months (54 Cases).—Contrary to many authors, convulsions are not infrequent in this period (12.9 per cent of this series). Here acute infections play the predominating rôle in the etiology (33.3 per cent of the cases). The cerebral birth injury residues are next in frequency (18.5 per cent). This age period contains the largest number of patients (11 per cent) with convulsions of unestablished origin.

Infants Between 6 and 36 Months.—This period has the highest incidence of convulsions (147 cases, or 35 per cent of the series. The acute infections, particularly the onset of the acute infectious diseases, are the most frequent cause of convulsions at this age (52 cases, or 35.3 per cent). These cases are recognized by the onset of convulsions with fever and leukocytosis. In this period spasmophilia or tetany constitutes an almost equal number (51 cases, or 34.7 per cent). These cases appear most commonly in the spring and fall as interrupted healing of rachitis (Gerstenberger and his associates[19]). They are usually diagnosed on the basis of characteristic convulsions preceded by irritability, facial twitching or laryngo-

TABLE 6.—*From 10 to 15 Years*

Diagnosis	Number	Per Cent
Epilepsy (idiopathic)	50	72.5
Cerebral birth injury residues	6	8.8
Congenital brain defect	2	2.9
Tetanus	2	2.9
Acute infection	2	2.9
Jacksonian epilepsy (no evidence injury, infection or tumor)	1	1.4
Residue brain injury (traumatic)	1	1.4
Congenital syphilis	1	1.4
Chronic encephalitis	1	1.4
Unknown	3	4.4
Total	69	100.0

---

[12] Sachs and Hausman (footnote 10, p. 582). Griffith, J. P. C., and Mitchell, A. Graeme: The Diseases of Infants and Children, Philadelphia, W. B. Saunders Company, 1927, vol. 2, p. 510.

[13] Wortis, quoted by Kennedy (footnote 1).

[14] Sharpe, W., and Maclaire, A. S.: Intracranial Hemorrhage in the New Born, J. A. M. A. **86:** 332 (Jan. 30) 1926. Roberts, M. Hines: The Spinal Fluid in the New Born, J. A. M. A. **85:** 500 (Aug. 15), 1925. Smith, L. H.: Am. J. Obst. & Gynec. **19:** 374 (March) 1930.

[15] Ehrenfest, Hugo: Birth Injuries, New York, D. Appleton and Company, 1931. Ford, F. R.; Crothers, Bronson, and Putnam, H. C.: Birth Injuries of the Cerebral Nervous System, Baltimore, Williams & Wilkins Company, 1927.

[16] Timme, W.: Epilepsy and the Convulsive State, Baltimore, Williams & Wilkins Company, 1931.

[17] Foerster, O., and Penfield, W.: Brain **53:** 99 (July) 1930.

[18] Sachs and Hausman (footnote 10, p. 582).

[19] Gerstenberger, H. J.; Hartman, J. I.; Russell, G. R., and Wilder, T. S.: The Etiology of Infantile Spasmophilia, J. A. M. A. **94:** 523 (Feb. 22) 1930.

spasm in infants with evidence of rachitis. The convulsions, which are characterized by carpopedal spasms, are usually precipitated by or associated with an acute infection of the upper respiratory tract. The diagnosis may be confirmed by the clinical findings of a Chvostek and a Birk (peroneal) nerve sign, the Trousseau phenomena and the Erb electrical reaction, by roentgenologic signs of a beginning healing of rachitis and by a usually low calcium and high phosphorus content of the serum. The cerebral birth injury residues constitute 11.5 per cent (17 cases) of this group and are usually characterized by a history of birth injury and a delayed development. Physical examination often reveals spasticity and increased and unequal reflexes. The convulsions may be precipitated by an acute infection. Ten cases, or 6.7 per cent, are due to idiopathic epilepsy. The high incidence of acute infections and spasmophilia in this period justifies the separation of this group from the following one.

After 3 years and through puberty, idiopathic epilepsy assumes the major rôle in the causation of convulsions, while cerebral birth injury residues take second place, and the acute infections rapidly decrease in number.

Between 3 and 10 Years.—This is the second largest group of cases (142 cases, or 34 per cent). Epilepsy is responsible for 81 cases, or 57 per cent. These patients present a family history of epilepsy or hereditary nervous disease in over 50 per cent of the cases, while the past history is usually irrelevant. The convulsions recur more or less periodically, with aurae in about 50 per cent. There is often a history of dietary indiscretion and constipation immediately preceding the attacks. The physical findings and laboratory examinations between attacks are usually negative (Peterman [20]).

The cerebral birth injury residues comprise 13.4 per cent of this group of cases (19 cases) and are characterized by the findings given previously.

The acute infections constitute 15 cases, or 10.6 per cent.

Between 10 and 15 Years.—This group of 69 children (6.4 per cent of the series) differs from the preceding one in the lower incidence of cerebral birth injury residues (6 cases, or 8.8 per cent) and acute infections (2 cases, or 2.9 per cent). Idiopathic epilepsy is responsible for 50 cases (72.5 per cent).

Most of the miscellaneous diagnoses (37 cases, or 8.8 per cent) are self-explanatory. The 6 cases of gastro-enteritis include a group of children with a history of dietary error followed by vomiting and diarrhea and convulsions in whom the physical findings were otherwise negative. The 3 cases of congenital cerebral defect were ones of porencephalia, which was confirmed by encephalograms. There were 2 cases of polioencephalitis which conform to Strümpell's and Marie's original descriptions of this condition.[21]

There is a strikingly low incidence of syphilis, hydrocephalus and injury (traumatic) to the skull in this series.

Routine examinations of the stools for intestinal parasites have given negative results in this series, and intestinal parasites are eliminated as a cause.

Examinations of the blood have revealed leukocytosis (over 10,000) at the time of entrance in 168 cases. Of these, 42 were cases of spasmophilia, 41 of idiopathic epilepsy, 36 of "acute infections," 18 of cerebral birth injury residue and the remainder of miscellaneous conditions. Forty-eight of these 168 patients with leukocytosis had a polymorphonuclear count over 70 per cent. The counts were found in 18 cases of epilepsy, 10 of "acute infections," 5 of "unknown cause," 4 of meningitis and the remainder in miscellaneous conditions.

The spinal fluids were abnormal or pathologic in 22 cases. (The cell count was over 10 in 7 cases of "acute infections," in 5 of meningitis, in 4 of epilepsy, in 3 of cerebral birth injury residues and in 2 of tetanus, and there was a positive Wassermann reaction in 1 case of congenital syphilis.)

There were 4 deaths in convulsions, 3 in tetanus and 1 in acute infection (bronchopneumonia).

IMMEDIATE TREATMENT

The simplest, quickest and most effective treatment of a seizure is the administration of chloroform by inhalation.

The most logical treatment, which is equally simple and effective but acts more slowly, is the administration of hypertonic solutions of magnesium sulphate (50 per cent), dextrose (or cane sugar) (from 25 to 50 per cent) or sodium chloride (from 5 to 10 per cent) by mouth or rectum (from 2 to 8 ounces [59.2 to 236 cc.]). The solutions may be given from every four to six hours as indicated. Sterile solutions of magnesium sulphate (25 per cent) may be injected intramuscularly (from 5 to 10 cc.) or intravenously (from 2 to 5 cc. of from 10 to 20 per cent, slowly) for rapid effect.

The spinal fluid should be drained for examination and for the relief of pressure (except in cases of suspected tumor of the brain). In intracranial hemorrhage lumbar drainage removes the blood, irrigates the subarachnoid space and tends to prevent blood clots and the collection of fluid. It should be preceded by the intramuscular injection of blood. Spasmophilia or tetany may be treated immediately by the intravenous or intramuscular injection of calcium preparations (calcium gluconate) followed by viosterol in large doses.

Sodium barbital may be injected intramuscularly or subcutaneously in doses of from ¼ to 1½ grains (0.016 to 0.097 Gm.).

Between seizures phenobarbital may be given by mouth to prevent a second seizure (from ¼ to 1½ grains).

The treatment of recurring convulsions is a large subject in itself and depends on the basic cause.

COMMENT

Four hundred and nineteen cases of convulsions in children have been studied, and a diagnosis has been established in 93.3 per cent. The study includes a complete history, a careful physical examination, including neurologic studies, a blood count, a Wassermann test of the blood and microprecipitation tests, urinalysis, examination of the spinal fluid (except in spasmophilia), examination of the fundi, x-rays of the skull and examinations of the stools. In the past three years encephalograms have been made in doubtful cases.

The findings reveal that certain diseases peculiar to childhood are the direct causes of most of the convulsions. While some children may be said to be particularly susceptible to the convulsive state, this study indicates that there is usually a physical basis for this susceptibility (spasmophilia or epilepsy) which is amenable to treatment.

---

[20] Peterman, M. G.: Wisconsin M. J. **31**: 169 (March) 1932.

[21] Strümpell: Jahrb. f. Kinderh. **22**: 173, 1885. Marie, P., and Foix, C.: Triplégie spasmodique sclérose intracérébrale, Rev. neurol. **25**: 346, 1913.

Every convulsion produces a certain amount of cerebral injury and therefore lowers the threshold for subsequent seizures. Every convulsion demands a careful study and effort to prevent a recurrence. It is extremely unfortunate that there are still physicians who consider convulsions a necessary evil of childhood and advise parents that the child will "outgrow" the tendency.

While many patients came in with diagnoses of thymic convulsions, worms, teething convulsions or toxic convulsions, a thorough examination eliminated these diagnoses. These conditions must truly be exceedingly rare. The teething convulsions were usually spasmophilias.

During the past year I have made moving pictures of the various types of convulsions in order to study the convulsive stage in detail. No conclusions have been drawn, but it appears that the idiopathic epilepsies represent stereotyped reactions which are also observed in some brain injury residues (birth and traumatic), while most of the remaining seizures represent incoordinated "explosions."

CONCLUSIONS

A practical classification of convulsions in childhood is presented. Most of the convulsions in new-born infants are due to acute infections or to cerebral birth injury; in later infancy, they are due to spasmophilia, and in childhood, to idiopathic epilepsy. A basic cause may be found in most cases. Convulsions are just as serious a symptom in children as they are in adults. There is no justification whatever in minimizing the symptom because of the age or in informing parents that time will remove the cause.

ABSTRACT OF DISCUSSION

Dr. Harry Lowenburg, Philadelphia: Some years ago, before this section, I believe, Drs. Powers and Park, at that time at Yale, did some studies in the treatment of convulsions in whooping cough. They came to the conclusion that many of these children who develop convulsions during whooping cough, and also many children who initiate their acute infectious diseases with convulsions, were essentially spasmophilic. They made calcium studies and were able to demonstrate this in a large number of cases. The conclusion which they drew was that it would be possible, as a prophylaxis in the treatment of whooping cough and of other conditions wherein convulsions might be expected, to regard these children as spasmophilic and treat them accordingly with injections of calcium and with the hormone of the parathyroid. I followed this teaching for many years and, I think, to great advantage. Dr. Peterman did not mention in his paper the use of calcium, and of parathyroid extract. Perhaps it was broadly covered under the direction to treat the basic disease. If cerebral edema is a cause for convulsions in these children, it seems quite in order to make use of calcium and of the parathyroid hormone.

Dr. M. G. Peterman, Milwaukee: I have had only two children with pertussis develop convulsions. Neither of them had a low blood calcium. One had a blood-tinged spinal fluid; the other had fluid under increased pressure. But neither presented what was considered as spasmophilia. Therefore, I have not included that point in the discussion. The series shows that the convulsions in infants are due to cerebral birth injuries or acute infections; in later infancy, to spasmophilia; in childhood, to idiopathic epilepsy. I believe that convulsions are just as serious a symptom in children as they are in adults and that there is no justification whatever in minimizing the symptoms because of the age, or in informing parents that time will remove the cause.

THE MORTALITY FROM ABSCESS OF THE BRAIN

FRANCIS C. GRANT, M.D.
PHILADELPHIA

Of all the lesions involving the brain, none requires more judgment and experience in its successful management than an abscess. That an abscess exists may be difficult of proof. Frequently when its presence seems unquestioned, a precise localization cannot be made. Lastly, when the diagnosis of an abscess in a definite area is reached, the decision as to the proper time and method for its evacuation taxes all the surgeon's skill. All too often diagnosis and localization are proved correct, but the patient dies as the result of imperfectly applied surgical measures.

This report is based on a series of fifty-one verified abscesses of the brain, thirty-nine from the neurosurgical service of the University Hospital, eight from the Graduate Hospital and four from Mount Sinai Hospital. The etiology and pathology of brain abscess have been extensively reviewed by many writers. Further repetition of these points seems unnecessary. I wished to determine from an analysis of these fifty-one cases whether the high mortality accompanying abscess of the brain is due to errors in diagnosis and localization, or whether the time in the development of the abscess at which drainage is instituted and the means employed in drainage are the cause.

Table 1.—*Fifty-One Cases of Brain Abscess*

Preoperative localization and diagnosis correct.....	39 or 76.4 per cent
Cases diagnosed as tumor but localization correct...	4
Total localization correct........................	43 or 84.3 per cent
Errors in localization and diagnosis cannot account for mortality	

Among the fifty-one verified cases, a preoperative diagnosis of abscess was made in thirty-nine. In four the lesion was considered to be a tumor rather than an abscess. All these forty-three patients were operated on and the abscesses drained. One child was admitted unconscious with signs of increased intracranial pressure. The history obtained was inadequate. As the situation was desperate and no positive diagnosis could be reached, ventricular tap was immediately performed for relief of pressure in the hope that the child could be kept alive until a more thorough examination was made. However, she died six hours later. Autopsy showed a cerebellar abscess. In four cases, abscess was suspected, and drainage attempted unsuccessfully. But since in each instance the localization was incorrect, the abscess was subsequently found at autopsy. In two cases a diagnosis of meningitis was made on admission and no operation seemed indicated. Autopsies showed a subcortical abscess of the frontal lobe, ruptured into the anterior horn of the ventricle, and a subdural frontal abscess with generalized meningitis. Another patient was awaiting operation for cerebellar abscess, but died suddenly from a cerebellar crisis. Autopsy verified the localization of the abscess.

These figures seem to show clearly that diagnosis and correct localization of the brain abscess were possible in roughly 80 per cent of this series. Errors in deter-

---

From the Neuro-Surgical Clinics of the University Hospital and the Graduate Hospital of the University of Pennsylvania, and the Mount Sinai Hospital.

Read before the Section on Nervous and Mental Diseases at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

mining the presence and situation of a brain abscess do not, therefore, seem to play an important part in accounting for the high mortality rate.

Presuming that the diagnosis of brain abscess is made and a decision reached as to its position, at what period in its development should drainage be attempted? Should evacuation of the abscess be carried out promptly, or should intervention be delayed until the defensive mechanism of the brain has had ample time to wall off and encapsulate the infection? If accepted methods of treating infection elsewhere can be applied to intracranial suppuration, then surgical intervention should be postponed until localization has occurred. No experienced surgeon would consider incising and draining an abscess in any other area of the body before encapsulation was completed. Furthermore, the brain is less well organized than other regions to combat suppuration. The glial elements of the brain are highly specialized cells, well equipped to carry out their proper function, but they react slowly in localizing infection. Moreover, the brain is relatively poorly supplied with fibrous tissue, which is the foundation of any "walling off" process. Therefore, since delay in establishing drainage until localization of the infectious process has occurred is a major surgical principle, it should be strictly adhered to in dealing with brain abscess. But a longer period must be allowed the brain to complete the encapsulation, lest drainage be inserted before the defensive mechanism has functioned properly.

The development of an abscess of the brain parallels closely that of an abscess elsewhere in the body. Infection is implanted, adjacent cells die, and leukocytes surround and invade the infected area. "Cerebritis," local tissue necrosis without definite pus formation, occurs. Liquefaction of the center of the infected area follows. Finally, encapsulation may take place, unless the virulence of the organism is such that the defensive mechanism of the brain is overwhelmed. Obviously drainage during the stage of "cerebritis" is useless, for the infected area contains little or no free pus that can be evacuated. Even after the fluid pus has formed, drainage is of questionable propriety unless encapsulation has occurred. Encapsulation is evidence that the defensive reaction of the brain tissue has been able to control and localize the infection. Whenever possible drainage should be delayed until the abscess is circumscribed. The defensive mechanisms of the brain are thereby given sufficient time to complete encapsulation without the added handicap of operative trauma. Furthermore, isolation of the infecting organisms tends to decrease their virulence. Lastly, the adjacent tissues become sensitized to the infecting organism so that when drainage is instituted spread of infection about the drainage tract is less likely to result.

The results in this series of cases indicate the dangers of operation on an abscess of the brain before encapsulation has occurred. Nineteen such cases were verified by operation or at autopsy. In fourteen cases the abscesses were drained; four in the "cerebritis" stage, so that little or no pus was obtained. Three patients were not operated on because a diffuse meningitis was present when they were first observed. In two cases evacuation was attempted, but the localization was faulty, and the position of the lesion was discovered only at autopsy. Lack of encapsulation of the infection was demonstrated at necropsy in twelve cases. The operative notes in seven other cases state that no resistance suggesting capsule formation was met by the exploring cannula just prior to the appearance of pus in its lumen. None of these nineteen patients survived, although drainage by precisely similar methods was followed by recovery in instances in which definite encapsulation was encountered. While it is admitted that a sense of resistance to the tip of the exploring cannula may not be an accurate means of determining capsule formation, nevertheless, it seems sufficiently accurate to sustain our position. In three cases in which the operative notes stated that a capsule was present because of resistance to the cannula, microscopic examination later showed that no true encapsulation had occurred. However, the converse is not true. In no instance in which the operator held the opinion that the infection was not walled off was a capsule demonstrable at autopsy.

Based on this record, it is the opinion of my associates and myself that surgical intervention for evacuation of a brain abscess should be deferred until encapsulation seems assured. We do not believe that an unlocalized area of "cerebritis" should be classed as an abscess of the brain any more than a spreading infection elsewhere in the body can rightfully be designated as an abscess. Furthermore, we are doubtful as to the propriety of surgical intervention in these early cases. If any surgical measure is undertaken the method used should be most conservative. When the exploring cannula fails to evacuate pus or if pus is found without a change in resistance suggesting the presence of a capsule, the operator should think carefully before he inserts permanent drainage. The trauma resulting from introducing a drain at this time may seriously handicap the defensive reaction of the brain. A simple tap and evacuation of pus will relieve existing pressure symptoms. A second evacuation with drainage can be done at a later date when encapsulation of the abscess has been more completely established.

Table 2.—*Time of Encapsulation*

Operated on within 2 weeks	13
10 unencapsulated	
3 encapsulated	
Operated on third to fourth week	18
8 unencapsulated	
10 encapsulated	
Operated on fifth to sixth week	5
2 unencapsulated	
3 encapsulated	
All operated on after sixth week found encapsulated	

Granting that sufficient time should be permitted a brain abscess to encapsulate, are there definite signs which indicate with certainty that this has occurred? How long should drainage be delayed to permit complete encapsulation? Thirteen abscesses were verified in the first two weeks. Ten were unencapsulated; seven were proved at autopsy and three by operation. The four cases in which drainage was instituted during the period of "cerebritis" fall in this group. Twelve abscesses were subcortical. One of the three encapsulated abscesses was extradural following frontal osteomyelitis. In eighteen cases drainage was performed during the third and fourth weeks. Eight abscesses were recorded as unencapsulated, of which four were verified at autopsy. Five patients were operated on in the fifth or sixth week. Three of the abscesses were reported as encapsulated and two as unencapsulated, all on operative evidence alone. Each of the fifteen abscesses in the patients in this series operated on after the sixth week following the onset of symptoms appeared to have a definite capsule. It would seem, then, based on the criteria for encapsulation herein adopted, that thorough walling off of a subcortical area of infection within the brain requires about four weeks from the onset of symptoms, provided that the defensive mechanism of the brain is not overwhelmed from the start by the virulence of the infection.

Is there any other means by which encapsulation may be determined? Based on the records of these cases, the neurologic findings were not of much aid from this point of view. In only three of the nineteen cases of unencapsulated abscesses was there observed a definite increase in the neurologic signs suggesting a spreading lesion. In the other cases a group of symptoms appeared, at times slowly and in other instances abruptly, but all were apparent in some degree from the onset. These early manifestations often increased in severity, but except for evidence of increased intracranial pressure, such as headache, increasing stupor and slow pulse and respiration, it is curious how rarely a fresh neurologic symptom suggesting a spread of infection from one area into an adjacent part of the brain became conspicuous in the clinical picture. Lumbar puncture was performed so infrequently that no real information can be gleaned from this source. Fundiscopic examinations were made in forty-eight cases. Of eighteen unencapsulated abscesses, there was no choking in eleven; the disks were blurred in two, and actual choking varying up to 4 diopters in each eye occurred in five. Of the thirty-two encapsulated abscesses, there was no choking in six; blurring of the disks occurred in four, and in twenty choking of various degrees up to 7 diopters was noted. No record of the condition of the eyegrounds could be found in three instances. In two of the six encapsulated cases without choking, the abscess had probably been present for at least a year, so that possibly the swelling had been present and subsided. In these two instances the abscess followed a trauma and the inclusion of a foreign body within the brain. It seems, therefore, that the presence of choked disk suggests that encapsulation has probably occurred. We have not sufficient information as to the stage of the papilledema to bear out Lillie's[1] contention that surgical intervention is most successful when it is withheld until no further increase in the choking is to be noted.

Table 3.—*Operative Results*

19 cases unencapsulated abscess, mortality	100.0%
30 cases encapsulated abscess, 20 lived, 10 died, mortality	33.3%
Time of operation definitely affects results	

Table 4.—*Results of Fundiscopic Examination*

18 Unencapsulated Abscesses	
No choked disk	11
Blurred disk	2
Choked disk up to 5 diopters	5
30 Encapsulated Abscesses	
No choked disk	6
In 2 of these abscess present for at least a year and choking may have subsided	
Blurring of disk	4
Choked disk up to 7 diopters	20

The failure to save a single patient with an unencapsulated abscess of the brain by operative measures can lead to only one of two conclusions; either the surgical measures were ill timed or they were ineffectively applied. Drainage should certainly have been delayed in the four cases in which it was inserted during the stage of "cerebritis," for little or no pus could be evacuated. In two of these cases the "cerebritis" followed trauma. Three other patients were proved to have multiple abscesses, frontal and occipital, parietal and cerebellar and extradural and intradural frontal, obviously hopeless conditions. It should be stated, however, that in none of these instances was the presence of the second abscess suspected until revealed at autopsy. Since precisely similar methods of drainage were employed in all abscesses whether found to be walled off or not, a comparison of the results obtained by operation on the encapsulated group may serve to show whether faulty surgical technic was the cause for the overwhelming mortality when operation was carried through before localization was complete.

Thirty-two encapsulated abscesses round out this series. One patient died in the ward while awaiting operation. Another was refused operation owing to the abrupt development of frank meningitis. This case is classified as an error in diagnosis, since the presence of an abscess was entirely unsuspected. Autopsy revealed a well encapsulated subdural collection which had ruptured into the subarachnoid space. Earlier surgical intervention might well have resulted in recovery. Thirty patients with encapsulated abscesses were operated on and the abscesses drained with twenty recoveries and ten deaths. In three such cases the abscesses were drained in the second and third weeks following the onset of symptoms; one patient recovered and two died. One death occurred from sudden compression following apparently perfect drainage of a cerebellar abscess. Autopsy showed the tube within the abscess; the abscess was entirely collapsed, but the cerebellar lobe was swollen from traumatic edema. A pressure cone was demonstrable about the medulla, and the cerebellar tonsils were jammed in the foramen magnum. A subtemporal decompression or a ventricular tap might have saved this patient. He was found dead in bed the fourth night following operation. The pulse and respiratory rate gave no indication of increased pressure. As he had had essential epilepsy for ten years, it was suspected that a convulsion might have occurred, raised the intracranial pressure suddenly and caused fatal medullary compression. The second patient was suspected of having an abscess, but two exploratory taps were negative. The diagnosis of tumor was therefore made, and an osteoplastic flap reflected. A large abscess was discovered and an attempt made to marsupialize the abscess by sewing the dura to the capsule, thus walling off the subarachnoid space. The bone flap over the cavity was removed. The abscess slowly extruded, and for a time the situation appeared favorable. However, the "cerebritis" spread slowly, and meningitis resulting in death appeared seven weeks later.

Table 5.—*Time of Drainage of Encapsulated Abscesses; Series of Thirty-Two Cases; Thirty Operated On*

	Cases	Recovered	Died
Second to third week	3	1	2
Fourth week	11	8	3
Sixth week	4	4	0
Eighth week	4	1	3
Thirtieth to fiftieth week	5	3	2
One year	3	3	0

---

[1] Lillie, W. I.: Surg., Gynec. & Obst. 47:405 (Sept.) 1928.

Eleven encapsulated abscesses were drained in the fourth week of symptoms. Eight patients recovered and three died. One fatality resulted in a patient with multiple cerebellar abscesses only one of which was drained. The presence of two lesions was confirmed at autopsy. Both seemed of equal age and were not connected, so that it appears certain that the second abscess did not result from imperfect drainage or spread from the other. A second death followed the development of an internal hydrocephalus which resulted from imperfect drainage of a cerebellar collection. The third death in this group followed a simple tap and tap with insertion of drainage into a small deep-seated and toughly encapsulated abscess of the frontal lobe. The pus was located and evacuated at the first operation. Owing to the thickness of the capsule, it seemed doubtful whether drainage could be inserted. Two days later, the attempt was made, but the tube was implanted only with difficulty. Fatal meningitis developed a week later. Autopsy was refused. It is my impression that we should have been satisfied with a simple tap and not traumatized the tissues by the insertion of drainage.

Four patients with localized abscesses were operated on during the sixth week of their formation. All of the patients recovered. Curiously enough, in this group are included two cerebellar abscesses that were simply evacuated and not drained. In one instance it was believed that a tumor of the vermis was present. Both patients are alive and entirely well four and two years later.

Four patients make up the group operated on two months after the onset of symptoms. Three died and one recovered. One fatality followed operation on the mistaken diagnosis that a tumor was present. A large, right frontal abscess was discovered. The bone flap was removed and the arachnoid space excluded by suturing the dura to the abscess wall. The faulty diagnosis spoiled an excellent opportunity for recovery, as fatality from meningitis promptly resulted. A second patient had an ipsolateral cerebellar and parietal lobe abscess and a sinus thrombosis. Only the cerebellar abscess was diagnosed and drained. Death resulted from rupture of the cerebral collection into the ventricle. The third patient obviously had an abscess of the right temporal lobe following infection beneath the temporal muscle involving the zygoma. When first seen only a blurring of the disk was noted. Operation was delayed to allow for more complete encapsulation. Sudden stupor developed five days later. An abscess containing about 50 cc. of colon pus was hastily evacuated. The patient never recovered consciousness and died five hours later. Our judgment was unquestionably at fault in this instance.

Five abscesses were drained from six to twelve months after the first appearance of the symptoms. Two patients died. One death occurred in an old depressed fracture with an encapsulated sequestrum. A small cerebral fungus was present before operation. A collection immediately beneath the fungus and surrounding the sequestrum was evacuated. A sudden medullary collapse occurred four hours later. Further exploration revealed a larger abscess more deeply situated below the cortex. This was promptly drained, but nevertheless, the patient died. The second death followed drainage of a right temporosphenoidal abscess in one stage through an opening in the bone 4 cm. across. The abscess was easily tapped and drainage inserted without difficulty, but a cerebral fungus resulted, followed in several weeks by meningitis.

Three chronic abscesses, which from the history were apparently present for at least a year, were drained. All of the patients recovered uneventfully. These thirty cases represent the results of surgical drainage in true brain abscess. All of the lesions had progressed beyond the stage of "cerebritis"; localization had occurred, and the defensive mechanism of the brain had the situation well in hand when drainage was instituted. That precisely similar methods of treatment prior to encapsulation resulted in such a strikingly different mortality rate emphasizes the importance of selecting the proper time in the development of the abscess for the insertion of drainage.

METHOD OF DRAINAGE

In the drainage of these abscesses, three principles have rigidly been followed. First, with the exception of the four cases in which tumor was suspected and a large flap turned down, the lesion was approached through a small opening in the bone. In almost every instance a trephine was made, never more than 2 cm. in diameter. Every effort was used to place the opening in the bone in that area beneath which the abscess most closely approximated the surface of the brain. No particular effort was made to drain through the point at which the infection crossed the meninges into the brain. Second, in twenty-two of the thirty encapsulated abscesses, the evacuation was carried through in two stages, the trephine opening being made, the dura opened and packing introduced in the wound for from twenty-four to forty-eight hours to produce meningocortical adhesions and to wall off the subarachnoid space. Fifteen of these patients recovered and seven died. Third, the drainage material used in all instances was a soft rubber tube. Except in four cases in which the patients were operated on under the

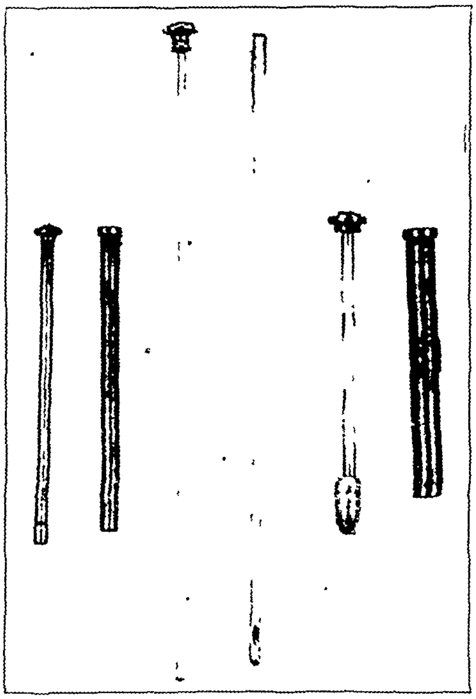


Fig 1 —Brain abscess cannulas. Exploring cannula and stylet (center). Two sizes of carriers and silver tubes to pass over the cannula into the abscess (right and left).

impression that the lesion was a tumor, the abscess cavity was never widely opened for inspection. Two of these patients, as has been stated, were treated by marsupialization of the abscess cavity. The after-treatment was modeled closely on King's[2] method; both patients died. In the other two cases, in which an osteoplastic flap was reflected, the abscess was opened, the pus sucked out, the cavity washed out with a mild antiseptic and the wound closed without drainage. One patient has had no symptoms suggesting a recurrence in the past four years, the other in the past eight months. In four cases, the abscess was tapped, but following Dandy's[3] suggestion no drainage was introduced. Three patients recovered and one died. All three patients have been symptom-free for over two years. Gauze packs have never been used in any of these cases to keep the cavity open or to act as drains, nor has the Moser drain, so strongly recommended by Cahill,[4] been employed.

One of the difficulties frequently encountered in attacking an abscess is the introduction of the drain. Considerable trauma may result to surrounding tissue with consequent spread of infection in an attempt to place the tube accurately in the abscess cavity. In an effort to solve this problem, we have made an exploring cannula of the usual diameter, but of double length. Over this cannula fits a sleeve with its lower end conical and tapering off to the exact size of the cannula (fig. 1). This sleeve carries snugly fitting silver tubes of various diameters. Once the exploring cannula is in the abscess cavity, the sleeve and tube are passed down the shaft to the point where the fingers steadying the cannula in the abscess cavity rest against the edge of the trephine opening. The reason for the extra length of the exploring cannula now becomes apparent, for its upper end projects out beyond the top of the sleeve. The operator's grip is next shifted on the cannula from below to above the sleeve, and he steadies the cannula by its upper end, as the sleeve passes down it into the abscess cavity. If the cannula cannot be steadied by its upper end and prevented from passing downward into the brain while the sleeve is being advanced into the abscess, there is great danger that both cannula and sleeve might progress together, and the tip of the cannula be plunged through the inner wall of the abscess. Once the sleeve and tube are in place, the cannula and sleeve are withdrawn, leaving the silver tube in the abscess cavity as shown by the escape of pus through its lumen. A soft rubber drainage tube is now passed down through the silver tube into the abscess and the tube withdrawn. By the use of this instrument we have been able to place a drainage tube accurately in any abscess cavity no matter how deeply seated, with a minimum of trauma.

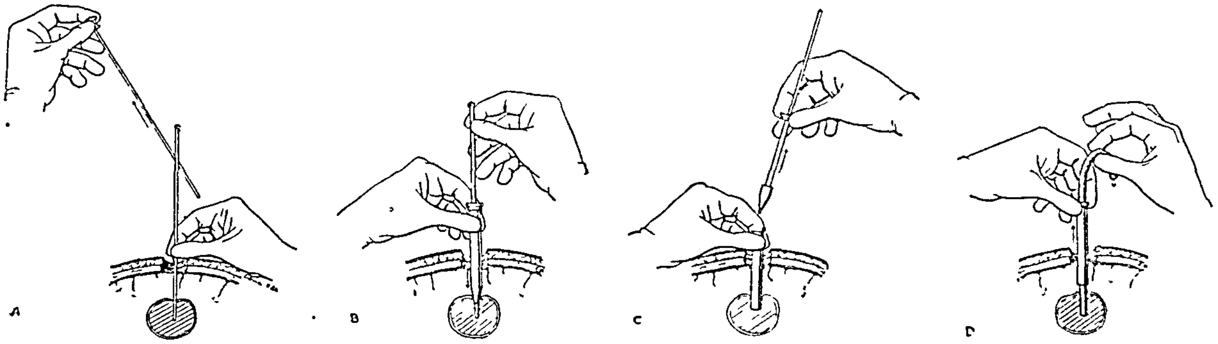


Fig 2—Diagram to illustrate the method of using the brain cannula *A*, the cannula is in the abscess, with the stylet withdrawn. *B*, sleeve and tube passing down the cannula into the abscess The cannula is made long so that its upper end may be grasped above the descending sleeve, thus securing the cannula and preventing it from passing down into the abscess with the sleeve In this way puncture of the inner wall of the abscess is prevented *C*, cannula and carrier withdrawn, leaving the silver tube in the abscess cavity. *D*, rubber drainage tube introduced accurately into abscess cavity through the silver tube. *The silver tube is then withdrawn, the rubber tube being left in place.*

COMMENT

It would appear from an analysis of the series of cases studied that the diagnosis and localization of brain abscess are no more difficult than for any other intracranial lesion. Ventriculography was used only four times as an aid in determining the situation of the lesion. In a fifth case, the abscess was encountered when an attempt was made to reach the lateral ventricle.

Drainage of a brain abscess before encapsulation has occurred has been uniformly disastrous in our experience. We admit that but one method has been employed. Possibly King's[2] technic, or the use of the Moser drain, might have given better results. Furthermore, we confess that we cannot describe any clinical symptoms that indicate with certainty that the infection is definitely localized. The figures presented seem to suggest that operation is most successful after the fourth or sixth week following the onset of definite symptoms. We are in entire agreement with the statement of McKenzie[5] that most cases in which an abscess of the brain is suspected are not surgical emergencies. Time should always be taken for careful study and complete examination so that localization is as accurate as possible. The high percentage of correct diagnosis in this series is due to a policy of delay until all studies are completed. If increased pressure was present, hypertonic solutions by vein were used to combat it. If the situation grew too acute, a trephine opening was placed over the area most strongly suspected, so that an emergency tap could be made promptly if necessary. Only two patients died because operation was delayed too long. Fourteen died because operation was performed too soon.

In the treatment of brain abscess, the surgeon is on the horns of a dilemma. Determination of the proper moment to drain an abscess is a critical point in successful treatment. If he operates too promptly, he may spread infection rather than evacuate it. If he delays too long, the abscess may rupture into the ventricle or subarachnoid space with disastrous results.

---

[2] King, J E. J · Surg, Gynec & Obst **39**: 554 (Nov) 1924.

[3] Dandy, W. E. Treatment of Chronic Abscess of the Brain by Tapping, J. A. M A **87**: 1477 (Oct 30) 1926

[4] Cahill, H. P.: Laryngoscope **40**: 365 (May) 1930.

[5] McKenzie, K. G: The Treatment of Abscess of the Brain, Arch. Surg **18**: 1594 (April) 1929.

We feel strongly that delay is preferable to fumbling haste and imperfect localization. Delay permits the brain to wall off the infection, to build up resistance to the particular organism and, by encapsulation, to reduce its virulence. That three of four patients with well encapsulated abscesses recovered following simple tap and evacuation of pus from the cavity shows that in time these abscesses become sterile or the virulence of the infecting organisms becomes so attenuated that the defense mechanism of the brain can handle the situation, provided we do not handicap it by too much traumatism of the adjacent areas. A more accurate localization enables the surgeon to place the trephine opening in the skull in the best possible position to obtain free drainage.

Only one method of drainage has been used in this series, the insertion of a small rubber tube. This technic has been used because thereby a minimum of trauma to adjacent tissue results. We feel that our mortality has resulted for the most part from a spread of the "cerebritis" about the abscess due to ill timed drainage or too much trauma resulting from bungling attempts to insert a drain. Frank meningitis has been a terminal event in only a little less than half the cases. In a third of those in which meningitis developed the infection appeared over a week after drainage was instituted, suggesting a gradual spread of "cerebritis" into the subarachnoid space rather than its development as a direct result of the original operation.

CONCLUSION

An attempt has been made to determine the influence on the mortality from brain abscess of the following factors: difficulty in diagnosis and localization, time of treatment and method of treatment.

Our conclusions are as follows:

1. Brain abscess is not more difficult to diagnose and localize than any other intracranial lesion, provided sufficient care is taken in the study of the case.
2. A brain abscess should not be drained until it seems certain that encapsulation has occurred, preferably in the sixth week after the onset of symptoms.
3. Drainage by a small rubber tube has given satisfactory results. No matter what method is used, unnecessary trauma to surrounding tissue is to be scrupulously avoided.

ABSTRACT OF DISCUSSION

Dr. Ernest Sachs, St. Louis: I think everybody is agreed that the principle Dr. Grant laid down, that one should not operate on an abscess until it is chronic, is sound if one can wait that long. But it has been my experience, unfortunately, that one sees cases in which it is impossible to wait until one thinks a capsule is formed. Just how long it takes for a capsule to form, I don't know; certainly based on other pathologic evidence, a number of weeks. There is one point in Dr. Grant's paper that strikes one forcibly, and that is that in all the cases, whether encapsulated or unencapsulated, the treatment was the same. I should like to raise the point whether some of the patients in this distressing group of cases in which the abscess is apparently probably not yet encapsulated might not be saved if a different method of treatment was used than is used in the encapsulated abscess. A recent case has brought this home. Sudden unconsciousness necessitated action and a brain abscess was aspirated without draining. The patient made a complete recovery. I believe the procedure plays an important rôle, and what I am doing now in the chronic abscesses (and of course I always wait if I possibly can) is to aspirate the abscess repeatedly, if necessary, and not drain at all. I hope that this method of procedure will perhaps enable me to save some of these patients with unencapsulated abscesses. A condition that is not so very different, I think, might be cited. Thoracic surgeons are strongly opposed to opening a chest that contains fluid unless there is frank pus, but a stage is reached frequently in which the chest is so full of fluid that in order to relieve the pressure symptoms they have to evacuate the fluid, but they don't drain. If they drain too soon, they are likely to get a fatality. That condition might be compared to this condition of an acute abscess in which one can't afford to wait. I quite agree with Dr. Grant that one should wait if possible until the abscess is encapsulated. Even then, I believe, unless the capsule is right near the surface, it perhaps is wiser to aspirate and not drain. In two cases I have used King's method of marsupializing the abscess when the abscess was near the surface of the cortex, and both of the patients got well, but I think that was due to the localization of the abscess near the surface, so that meningitis did not occur and pus did not get into the subarachnoid space. There is one other point on which I don't quite agree with Dr. Grant: in my experience the diagnosis of brain abscess is often vastly more difficult than the diagnosis of a tumor. I have seen a number of cases of brain abscess in which I not only could not make a localization but I was unable to tell whether there was an abscess.

Dr. R. E. Semmes, Memphis, Tenn.: In regard to the question of whether encapsulation has taken place, in my experience the general signs of sepsis have been a good index and I have waited until the temperature became normal and until the leukocyte count dropped to normal. I also think with Dr. Sachs that when the abscess has been located with a ventricular needle the nature of the pus should determine what is done. I have followed the plan of tapping the abscess and having a smear made immediately at the table. If the abscess is encapsulated and the pus is sterile, no drain is inserted, the abscess simply being drained by tapping, and retapping if necessary. If organisms are demonstrated by smear, I put in a small tube drain; but I think that if through accident or necessity one has to tap an abscess before encapsulation has taken place, in these cases one should not insert a tube. It will be time enough later after repeated tappings, if it becomes necessary on account of refilling, to insert a drain. The next most important thing in determining mortality, I think, is the situation of the abscess. Perhaps I have had bad luck with cerebellar abscesses, but in my experience they have been much more apt to be fatal regardless of encapsulation or even what is found in the pus. I believe one should not put a drain in a cerebral abscess. In the small subtemporal space, edema following trauma and secondary encephalitis is so dangerous that tapping alone should be employed. I think that in the average case of brain abscess, especially when encapsulation has taken place and when few or no organisms are found, the continued trauma accompanying a foreign body, such as a tube in the brain, is more harmful than helpful.

Dr. Francis C. Grant, Philadelphia: Dr. Sachs and I are in accord except possibly in minor details. Given a patient, such as he described, who has had mastoiditis for a considerable time, with headache, and the sudden appearance of increased intracranial pressure, there is no question as to what should be done. The abscess should be searched for and found, no matter what the stage in its development may be. It has been my routine under such conditions, if I think that the patient harbors an abscess but am not sure, to make a preliminary trephine over that area in the brain in which the abscess was believed to be situated. Then, if and when the crisis might occur, it would be possible with the least possible loss of time to evacuate the pus. As far as tapping of the abscess is concerned, there again I am in entire accord with Dr. Sachs. I have had five cases in which tapping has been done without the insertion of a drain, and four of the patients recovered. That a simple tap without the insertion of a drain is successful simply bears out the point that I tried to emphasize in the paper; namely, that it is the use of the minimum of trauma in the evacuation of pus that is of great importance. In these cases of abscess the patients are much more likely to die from the spread of cerebritis following the rough and fumbling insertion of a drain than they are from any other cause. By clumsy manipulation at the time the abscess is drained, the infection may easily be spread out into normal brain tissue. As a result, the defense mechanism of the brain must again attempt to localize the infection and is handicapped by the presence of the drainage tube. I would repeat, therefore, that to insure successful results it is important to avoid all possible trauma in the insertion of a drain. With regard to the high percentage of correct localization of abscess, I was as surprised at this as was Dr. Sachs, but I feel that by delay and carefully repeated examinations one is able to make a shrewd guess as to the presence and position of the lesion.

THE TREATMENT OF PERNICIOUS ANEMIA WITH DIGESTED LIVER

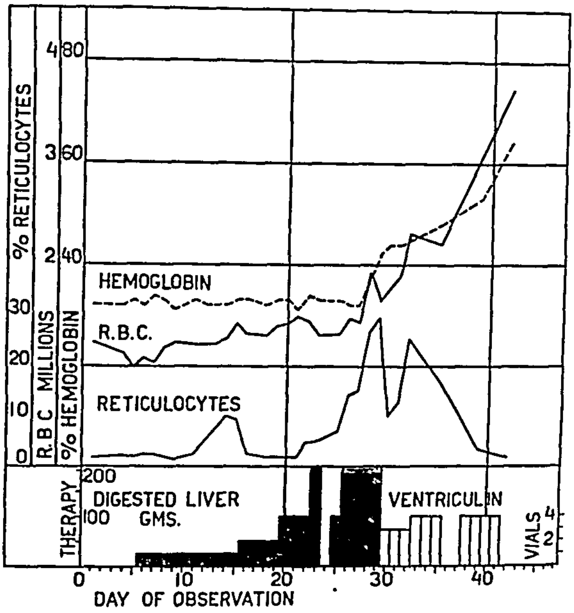
C. W. BARNETT, M.D.
AND
W. M. THEBAUT, Jr., A.B.
SAN FRANCISCO

Since the work of Minot and Murphy,[1] in 1926, the presence of a substance in liver, effective in producing remissions in pernicious anemia, has been repeatedly demonstrated. More recently, Castle[2] has shown that the digestion of beef in normal gastric juice leads to the formation of an effective substance, possibly identical with that present in liver. The nature of the substance in beef responsible for this reaction is not definitely known but it is conceivable that the same substance may also be present in liver, in addition to the effective agent already there. If so, the digestion of liver with normal gastric juice should give a material more potent in pernicious anemia than whole liver.

Walden and Clowes[3] have succeeded in increasing the potency of liver by mixing it with stomach tissue. The details of the method have not been published, but they mention that they had some preliminary difficulty in obtaining a potent product. Reimann[4] has also reported marked increases in the potency of liver by digestion in normal gastric juice obtained after histamine stimulation. He succeeded in obtaining typical remissions in pernicious anemia with as little as 10 Gm. of digested liver daily. Some time ago we carried out an experiment similar to the experiments of Reimann but did not report the results. In view of the disagreement between our results and those of Reimann, it seems worth while to record the experiment. The response of a patient with typical pernicious anemia to treatment with digested liver is shown in the accompanying chart. The digestion was carried out by the method of Castle and Townsend,[2] finely ground liver and normal gastric juice, obtained from a number of normal subjects after the subcutaneous injection of histamine, was used. The amounts of liver used are shown in the scale on the left side of the chart. The quantities of gastric juice varied from 120 to 160 cc. per hundred grams of liver. Treatment was started with 25 Gm. of liver daily for ten days. During this treatment there was a slight increase in reticulocytes to about 10 per cent but no change in the red cells or hemoglobin. The dose of liver was then increased to 50 Gm., 100 Gm. and finally 200 Gm. daily. No definite response was noted until the dose of 200 Gm. was reached, when a typical remission occurred. Treatment was then carried on with desiccated hog stomach. This response differs in no way from what one would expect after the feeding of the same amounts of whole liver. There is no evidence, from these results, that digestion has any effect on the potency of liver in producing remissions in pernicious anemia.

Since there are two possible sources of the effective substance in the mixture used, it is not possible to tell whether that already present in the liver or that formed by the digestion was responsible for the remission. In the latter case, since there was no apparent increase in potency, the destruction of that already present would have to be assumed.

To determine the effect of digestion on the effective substance already present in liver, a second patient with pernicious anemia was treated with a single dose of twenty-four vials of liver extract No. 343 digested in 120 cc. of normal gastric juice in the same manner in which digestion of the liver was carried out. The initial red count was 895,000, the hemoglobin 19 per cent and the reticulocytes 2.8 per cent. The reticulocytes increased to 35.2 per cent on the fifth day and the red count to 2,050,000 and the hemoglobin to 38 per cent on the tenth day. This response is exactly what one would expect from twenty-four vials of untreated liver extract. The antianemic factor in liver is evidently not destroyed by digestion.



The response of a patient with pernicious anemia to treatment with digested liver

SUMMARY

The response of certain patients with pernicious anemia to treatment with liver and liver extract digested in normal gastric juice differs in no particular from what would be expected from the same quantities of liver and liver extract, undigested.

These results suggest that the increase in potency of liver when mixed with stomach tissue observed by Walden and Clowes is not alone a result of digestion of liver protein but may be due to a summation of the potent material already present in liver, in stomach tissue and possibly small amounts formed by digestion. We are unable to explain the discrepancy between our results and those of Reimann.

From the Department of Medicine, Stanford University Medical School

[1] Minot, G R, and Murphy, W P Treatment of Pernicious Anemia by a Special Diet, J A M A **87:** 470 (Aug 14) 1926

[2] Castle, W B Am J M Sc **178:** 748 (Dec) 1929 Castle, W B, and Townsend, W C Ibid **178:** 764 (Dec) 1929

[3] Walden, G B, and Clowes, G H A Proc Soc Exper Biol. & Med **29:** 873, 1932.

[4] Reimann, F.. Med Klin **27:** 880 (June 12) 1931.

BOTULISM IN NORTH DAKOTA

REPORT OF OUTBREAK OF THIRTEEN FATAL CASES

ROBERT W. ALLEN, M.D.
State Epidemiologist
AND
A. WALTER ECKLUND, M.S.
Bacteriologist in Charge, State Public Health Laboratory
BISMARCK, N. D.

In reviewing one of the early biennial reports of the North Dakota State Board of Health we find that an outbreak of so-called ptomaine poisoning occurred at Mayville in June, 1895. The victims, all of whom died, had eaten some canned cove oysters from the same can, and all of those who had eaten of the oysters were affected. The symptoms recorded were:

> Disturbed vision, swollen tongue, difficulty in speaking and swallowing, the latter increasing until patient was unable to swallow at all. Complete paralysis of pharyngeal and esophageal muscles for several hours before death. Heart action toward end feeble. Duration forty to sixty hours.

In the light of present knowledge, these were undoubtedly cases of botulism.

The first recorded outbreak of botulism in North Dakota occurred in June, 1930, at Golva, Golden Valley County, with four fatal cases reported. North Dakota suffered its second reported outbreak of botulism in 1931, which incidentally was the largest outbreak ever to occur in this country in a single community from a single common cause, and occurred within eight months after the outbreak at Golva.

A midnight lunch consisting of buns, hot boiled wieners, vegetable salad, light spice cake, light cookies and coffee was served in connection with a party given at a farm home near Grafton, Walsh County, on the evening of Jan. 29, 1931. The salad consisted of diced carrots, peas and cut string beans, served on a lettuce leaf, with whipped cream dressing. The carrots, peas and string beans were from a "batch" home canned the previous season by the so-called cold pack method, a copper wash boiler having been used instead of a pressure cooker. The canning receptacles used were glass jars with both metal and glass caps. The host family had been eating of this "batch" of vegetables during the fall and winter without previous ill effects. A history of disease among the animals or poultry on the farm was not obtainable.

Sixteen of the seventeen present partook of the entire lunch, one guest declining to eat the salad because he never ate vegetables in any form; subsequently he did not become ill. Thirteen of the sixteen who ate of the salad afterward became ill and died. The remaining three who ate of the salad and did not subsequently become ill therefrom were intoxicated at the time of eating, had been nauseated and vomited before lunch was served, and vomited again during or just after lunch. "Moon" or "hootch," home-made beer, and wine were the liquors consumed by several who attended the party. It did not enter into the cause of death, however, as five of the victims who died did not take a drink of liquor in any form.

The ages of the patients ranged from 15 to 45 years. The time intervening between the ingestion of the poisoned food and the onset of the disease ranged from 16 to 108 hours, with an average of 31.8 hours. The duration of the disease ranged from 12 to 120 hours, with an average of 34.5 hours.

REPORT OF CASES

The first victim was a housewife, white, aged 38. The onset took place sixteen hours after ingestion of the poisoned food. This patient had eaten a double portion of the salad, her husband having refused his portion because he never ate vegetables in any form. The symptoms in the order of their appearance were dizziness, muscular weakness, diplopia, vomiting, constipation, difficulty in swallowing, muscular paralysis (she could not help herself in bed); respiration was normal in rate but very superficial; the patient appeared toxic and said but little; the pulse rate was 80 until during the last hour and then became rapid up to 120-140. The temperature was normal; blood pressure 125 systolic and 75 diastolic; reflexes were normal; the pupils equal. Death occurred forty-eight hours after ingestion of the poisoned food and thirty-two hours after the onset of the disease; there was marked quietude, no struggle and extreme cyanosis. The pulse was perceptible for several minutes after respirations ceased. The immediate cause of death was respiratory paralysis.

The twelfth victim was a white man, aged 26, single, who did general labor. The onset occurred thirty hours after ingestion of the poisoned food. On arising in the morning, he complained of dizziness and diplopia and was nauseated. Throughout the entire day the same symptoms persisted but did not increase. Diarrhea followed an oil cathartic. Twenty-four hours after the onset he complained of difficulty in swallowing and talking; the tongue was "thick." The blood pressure was 115 systolic and 70 diastolic, pulse 80, temperature normal. There was no muscular weakness until the afternoon of the second day. He slept well the first night, with no illness except for the diarrhea, but he became restless the second night and remained so until death. There was labored respiration in the afternoon of the second day and he was unable to extend the tongue from the mouth. Forty-eight hours after the onset he suffered choking spells, later strangling frequently. Cyanosis developed. The sensorium was clear. Death occurred fifty-two hours after the onset of the first symptoms. The immediate cause was respiratory paralysis. The pulse rate shortly before death was 100 and the temperature was subnormal. The pulse continued strong for several minutes after respirations ceased.

The last victim was a white man, aged 23, single, a laborer. The onset of symptoms occurred 108 hours following ingestion of the poisoned food. There was muscular weakness; he fell down and was unable to arise. Visual disturbance appeared on the second day of illness and consisted of blurred vision only. During the first three days of illness he was about town, attended the funerals of his fellow victims, testified before the coroner's hearing, and was interviewed by one of us and by other investigators. He first experienced difficulty in swallowing solids on the third day of illness but had no difficulty in swallowing liquids at any time. Muscular weakness was pronounced on the third day. He refused hospitalization. On the fourth day, while running down an alley in response to a volunteer fire call, he fell; being unable to arise, he was picked up by friends and taken to the hospital. Muscular weakness was marked; he was unable to turn himself in bed without great difficulty. The sensorium was clear until death. He was restless most of the time and slept poorly. Respiration was rapid but quiet, superficial but not labored. The pulse was from 100 to 140, gradually increasing up to the time of death. The temperature was from 100 to 102 F. The blood pressure was 110 systolic and 70 diastolic. The urine was normal. Death occurred suddenly from respiratory paralysis, five minutes after the patient had sat up in bed and taken liquid nourishment (a bowl of soup), 120 hours after the onset of symptoms. There was little cyanosis and no struggling.

COMMENT

The general symptoms, elicited by other victims with few exceptions, were as follows: 1. Diplopia followed blurred vision, changing to dimness of vision. 2. There was difficulty in speech proceeding to complete aphonia. 3. Constipation was the rule; some of the victims failed to be relieved with all available measures, while one suffered diarrhea with green paint-like stools. 4. The patients were unable to protrude the tongue beyond the teeth and to expel accumulated mucus from the throat. 5. Most of the patients evinced restlessness and intense fear of death. 6. The temperature was subnormal in all but two cases. 7. One of the attending physicians described the appearance of the throats as similar to one anesthetized locally for tonsillectomy. 8. Death was due to strangulation or respiratory paralysis in all cases. Heart action continued in one case for six minutes after the respirations ceased.

POISONED FOOD INVOLVED

Unfortunately, none of the original salad material was obtainable. However, the vegetable mixture of diced carrots, peas and cut string beans, which entered into the formation of the salad, was undoubtedly the infected food. This conclusion is arrived at by the process of elimination. The wieners and lettuce were the only other foods that could have entered into the cause. The wieners were from a batch of some 150 pounds, made up by the local meat market two days previously and sold indiscriminately to the local trade. The lettuce had been purchased on the open market. No other food poisoning cases occurred in the community except among those who attended the party and ate of the lunch served at midnight. The wieners had been boiled just previous to being served, which would have rendered them safe even though they had been infected. In addition, two younger children of the host family, who had retired before lunch was served, ate some of the remaining wieners for breakfast the following morning and for lunch at school that day, without ill effects. Alcoholic beverages consumed were ruled out for the reason that five of the victims did not drink at all, and of those who did, three did not become ill.

Laboratory Results

Laboratory	Direct Micro-Examination of Material	Toxicity of Original Food Feeding Tests	Toxicity of Original Food Injection	Culture of Original Food B. Botulinus	Toxicity of Blood and Spinal Fluid	Cultures from Colon
Dr. W. E. Carey, U. of Chicago	Not reported	Negative for guinea-pig	Not reported	Negative	Negative	Positive for B. botulinus type A in one culture
Dr. A. K. Saiki, U. of N. D.	Not reported	Negative for guinea-pig and mice	Negative for guinea-pig and mice	Negative	None submitted	None submitted
A. W. Ecklund, M.S., S. P. H. Lab., Bismarck	Gram-positive spore bearer	Negative for guinea-pig	Negative for guinea-pig	Negative	None submitted	None submitted
C. I. Nelson, Ph.D., N. D. A. C., Fargo	Gram-positive spore bearer	Not reported	Positive for guinea-pig; no antitoxic protection tests	Negative	None submitted	None submitted
E. M. Stanton, Regulatory Dept., Bismarck	Gram-positive rods; no spores	Negative for guinea-pig and chickens	Negative for guinea-pig	Negative	None submitted	None submitted

Samples of the suspected food were secured from the host's family larder and sent to the State Public Health Laboratories at Grand Forks and Bismarck, to the State Regulatory Department, Bismarck, to the Agricultural College, Fargo, and to the University of Chicago Laboratory, Chicago. A summary of the reports of the various laboratories is given in the table.

LABORATORY EXAMINATIONS

As already stated, specimens of the suspected canned vegetables were secured for a bacteriologic examination and sent to five different laboratories. Four jars of the mixture of diced carrots, peas and cut string beans were secured from the pantry and cellar, from the same supply as the vegetables used for the salad.

The material in the jars was a juice of the vegetables together with solid portions of them. The liquid was cloudy and the contents of the jars gave off a sour, rancid, limburger cheese-like odor. There was visible gas production. The five laboratories to which the samples were submitted followed in general the same technical methods of procedure for isolation and identification of Bacillus botulinus and its toxin, namely:

1. Direct microscopic examination of material.
2. Toxicity tests on the original material.
   (*a*) Inoculation.
   (*b*) Feeding.
3. Cultural examination for B. botulinus.
4. Toxicity test of the cultures.

In addition to these procedures, Dr. W. E. Carey of the University of Chicago secured specimens of spinal fluid, blood and a section of the ascending and transverse colon, with its contents, from the twelfth victim. These were taken to the University of Chicago, Department of Hygiene and Bacteriology, for study. A comparative summary of the reports of the various laboratories is given in the accompanying table.

An evaluation of the laboratory results is rather difficult to make. In general, the results agree quite closely. A gram-positive spore bearer was found by two laboratories, a gram-positive rod by one, two laboratories not reporting this examination. A general agreement of four laboratories on feeding test with guinea-pigs, chickens and mice indicates that the samples were nontoxic by this method. Three laboratories reported the material nontoxic by subcutaneous or intraperitoneal injection. One laboratory found the material toxic but did not carry out antitoxin protection tests. All five laboratories were in agreement that the material did not contain B. botulinus as indicated by the cultures made of the original materials. This of necessity removes the possibility that the one laboratory reporting the original food toxic had found the toxin of B. botulinus. There can be only two interpretations of the laboratory work done on the toxicity of the food and its bacterial flora:

1. The material submitted and examined was not the same as the material consumed at the host home.

2. The material under examination was nontoxic and the laboratory reports do not substantiate the hypothesis of a food infection with B. botulinus.

Only one laboratory received clinical material for examination, this consisting of blood, spinal fluid and a section of colon from the twelfth victim. The blood and spinal fluid were nontoxic. The report of the bacteriologic examination of the contents of the colon was reported as follows:

> Several cultures were made from the section of the colon. One of these, on feeding to guinea-pigs, was found to be toxic.

Protection tests with antitoxins A and B gave protection with type A antitoxin but not with type B. This demonstrates the presence of B. botulinus type A in the intestine of one of the victims and it indicates the Grafton outbreak was due to type A botulinus.

This one single factor is all that the laboratories offer to substantiate the clinical diagnosis of botulism. Even though this seems rather meager evidence, the fact cannot be overlooked that B. botulinus type A was isolated from the intestine of one of the victims, in spite of the fact that the food examined was unquestionably nontoxic.

NECROPSY

The macroscopic and histopathologic observations on the twelfth victim, as noted by Drs. French and Saiki of the University of North Dakota School of Medicine, Grand Forks, were confirmatory of botulism intoxication. General congestion of all internal organs was noted, especially those of the central nervous system. The basal ganglion showed slight congestion, with chromatolysis of the ganglionic cells and disappearance of Nissl granules.

No specific pathologic changes in bodies dead from botulism have been definitely recognized in the past. The observations in this case, however, are in close harmony with observations on record of former cases. All, therefore, strongly support the clinical diagnosis of botulism poisoning.

DIAGNOSIS

The diagnosis of botulism, although a rare disease, from the clinical symptoms alone, when established, entails no serious entanglements to the trained mind of the skilled physician. Dr. M. W. Lyons of Sentinel Butte, who attended the four patients of our first recorded outbreak, and Drs. G. M. and C. J. Glaspel, C. R. Thompkins and F. W. Deason of Grafton, who attended the patients of the second and most recent outbreak, made positive diagnoses of botulism prior to the death of the first victim. Not one of these physicians had previously seen a case of botulism.

TREATMENT

General.—The general treatment carried out was that of heavy catharsis, forced liquids, rest in bed, liquid diet, and, toward the end, respiratory and cardiac stimulants. Sedatives were required in some cases. All patients were hospitalized or under a nurse's care in their home.

Specific.—Specific treatment with botulinus antitoxin was not resorted to either prophylactically or therapeutically, for the reason that it was not available until twelve of the victims were dead and the thirteenth already ill, and the available supply was insufficient to offer any therapeutic advantage.

Antitoxin.—Botulinus antitoxin type A and B combined, as supplied by Jensen and Salisbury, Inc., Kansas City, Mo., sole commercial manufacturers of the product in the United States, was administered to one of the three survivors on the eleventh day following the fatal party. The attending physician, W. H. Long, from the Dakota Clinic, Fargo, kindly furnished the following report:

> The ocular movements were good, the pharyngeal reflexes normal; there was a definite nystagmus to the right, to the left and vertically. The temperature was normal, the pulse 80.
>
> It was thought best to give the antitoxin, so the patient was tested by the intradermal method and then given 1 cc. of the antitoxin. After half an hour, the remainder of the 1,000 units was given. That night she was very ill; her legs were weak and she fainted while climbing the stairs to retire. I saw her the following day and the nystagmus was much increased, but there were no other symptoms. On the second day the nystagmus was still present, and on the fourth day she developed a mild serum reaction. Subsequently the patient completely recovered.

SUMMARY

1. Diagnosis of botulism, type A in the Grafton outbreak was confirmed by the University of Chicago laboratory, from a section of the colon of one of the victims.

2. The vegetable mixture of diced carrots, peas and cut string beans served in the salad was without doubt the poisoned food. This is concluded from the elimination of all other possible poisoned food and the suggestive laboratory observations on other similar canned vegetables.

RECOMMENDATIONS

1. The proper procedure in home canning of foodstuffs and their preparation before serving should be given the greatest possible publicity.

2. In case of an outbreak of botulism, all individuals known or suspected to have eaten of the poisoned food should receive a preventative dose of botulinus antitoxin, type A and B combined, at the earliest possible moment.

3. As the immediate cause of death in botulism is respiratory paralysis, it would seem feasible that artificial respiration or the use of a respirator should be resorted to in the last measure of treatment, in conjunction with the free use of botulinus antitoxin.

Clinical Notes, Suggestions and New Instruments

SUCTION IN OBTAINING ENDOMETRIAL BIOPSIES

HAROLD H. KLINGLER, M.D., AND JOHN C. BURCH, M.D.
NASHVILLE, TENN.

The diagnosis of intra-uterine lesions is frequently difficult and in many cases can be established only by the study of material obtained by curettage. In a recent study of endometrial hyperplasia it seemed desirable to obtain tissue from each patient at weekly intervals during the course of the disordered cycle. It was, of course, impossible to curet so frequently, and, furthermore, such tissue would have no value from the standpoint of study, as it would be impossible to gage the factor of regeneration.

Geist's[1] method of studying the morphology of menstrual blood had seemed a solution in cases in which actual bleeding occurred. In a case of this type, in which the cervix was open, we inserted a small catheter into the uterus and aspirated the bloody uterine contents. In this instance a sufficient quantity of tissue was obtained to indicate that endometrium was actually sucked into the catheter. Martin and Ellis[2] and others had previously used the principle of aspiration and needle puncture in obtaining tissue from deep-seated lesions, but, so far as we can determine, the method of aspiration has not been applied to the uterus. It is not, however, our intention to claim priority but simply to call attention to a method that has proved useful to us.

The method is as follows:

An ordinary Keyes-Ultzman cannula, which in reality is nothing more than a rigid hollow uterine sound with perforations at the tip, was used. Its use has been reported in a previous communication.[3]

From the Department of Obstetrics and Gynecology, Vanderbilt University School of Medicine.

[1] Geist, S. H.: Morphology of Menstrual Blood, Am. J. Obst. & Gynec. **22**: 532-542 (Oct.) 1931.

[2] Martin, H. E., and Ellis, E. B.: Biopsy by Needle Puncture and Aspiration, Ann. Surg. **92**: 169 (Aug.) 1930.

[3] Burch, J. C., and Klingler, H. H.: Endometrial Biopsy by Suction, J. Tennessee M. A., to be published.

While the results with this instrument have proved satisfactory in a number of cases, it was frequently difficult to insert the instrument on account of its rigidity. A Luer or all-glass type syringe was attached to the cannula. However, numerous syringes were broken in withdrawal and suction due to the stress at the junction of syringe and cannula. This made it necessary to substitute a tube constructed of malleable copper and attached to a record syringe. Another instrument, also made of copper but with a small curet with closed back, was also constructed. We were not able to obtain good results with the curet head. The simple copper tube, however, has given excellent results and has been in use in the outpatient department for some time. No bad results have been noted. Most patients complain of mild discomfort, but in no instance has an anesthetic or analgesic been necessary.

The technic is briefly as follows: The patient is placed in the lithotomy position. Cervical exposure is obtained by means of a bivalve speculum. The cervix is cleansed of mucus and the os painted with mercurochrome-220 soluble. The tube is inserted into the uterus and bent slightly, depending on its position. When the cannula comes to rest against the uterine wall, the syringe is attached to the cannula and strong suction is made, while slight pressure keeps the tip of the cannula in contact with the uterine mucosa. While suction is maintained, the cannula is withdrawn for about half an inch and then released. The instrument is then rotated slightly, so that on reinsertion it will come to rest on another part of the mucosa. This process is usually repeated about three times, and the instrument withdrawn during continuous suction. The apparatus is carefully washed with solution of formaldehyde by drawing the fixative back and forth several times in order to remove all the particles of tissue from the apparatus. It is then carefully washed out and sterilized and is ready for use again.

We believe that as much information can be obtained by this method as by diagnostic curettage, except in cases of very small early circumscribed endometrial carcinoma. This condition should always be thought of when the symptoms are not in accord with the study of the curettings or when the results of treatment are unsatisfactory. In such instances, curettage should be performed without delay.

CONTACT DERMATITIS IN AN ANESTHETIST, DUE TO "AVERTIN" (TRIBROM-ETHANOL)

George V. Kulchar, M.D., Philadelphia

Since the introduction of "Avertin" in 1925 it has been used extensively as a general anesthetic. Numerous reports have appeared describing renal and hepatic damage following its use. Further studies have shown, however, that the impairment of renal and hepatic function is for the most part slight and transient. This has been substantiated by the recent work of Bruger, Bourne and Dreyer.[1] There have been, however, no reports of toxic eruptions directly attributable to "Avertin," and the case reported here of cutaneous sensitization following repeated prolonged exposure in the handling of the drug by an anesthetist is the first to come to my attention. Survey of the literature seems to indicate that "Avertin" as an anesthetic will probably come into even more extensive use in the future, owing to its relative safety and ease of administration.

In this country "Avertin" is dispensed in the form of "Avertin Fluid." This is a 100 per cent solution of tribromethyl alcohol (Avertin) in amylene hydrate. For the induction of anesthesia, a 3 per cent solution of the "Avertin Fluid" is made up in water at 40 C. This is instilled rectally by means of a tube. Owing to the very labile molecular structure of tribromethyl alcohol, heating above 45 C. results in the formation of dibromacetaldehyde and hydrobromic acid. The former appearing in improperly prepared solutions gave rise to numerous instances of rectal irritation reported following the introduction of "Avertin." The presence of dibromacetaldehyde is now tested for as a routine with congo red before instillation. With this precaution, the instances of irritation have greatly decreased. It seems unlikely that these represent true instances of sensitization to the drug.

REPORT OF CASE

Miss N. M., aged 28, an anesthetist, was seen on Nov. 27, 1931, at which time the dorsal and volar surfaces of all the fingers and the palms of both hands were deeply erythematous, fissured and exfoliating. No vesiculation was noted and the nails appeared normal. Careful inquiry into the family and past histories revealed nothing of importance. The patient had been administering "Avertin" as an anesthetic extensively for the past twelve months. For the past six weeks she had noted itching and burning of the fingers and palms whenever exposed to "Avertin," and the eruption had been present four weeks. There had been no previous dermatitis, although exposure had been repeated and prolonged prior to the onset of the present eruption. On physical examination, nothing abnormal was noted except for the dermatitis of the hands. Close inspection of the feet and intertriginous areas revealed no evidence of a mycotic infection. Scrapings made from the fingers were negative for fungi. The blood Wassermann reaction was negative.

Because of the itching and burning noted by the patient after handling the "Avertin Fluid" and the accentuation of the process on the fingers handling the rectal tube, a sensitization was suspected. According to the method described by Jadassohn,[2] patch tests were made with the fluid in dilutions varying from 25 to 100 per cent. After forty-eight hours definite positive reactions, consisting of an erythematous miliary papular eruption localized to the area of application, were noted with all dilutions. The controls were negative. Within forty-eight hours after the removal of the patch tests, the eruption became vesicular. The positive reactions persisted for eight days, the late stages resembling a chronic eczematoid dermatitis. On repetition of the patch tests the same results were obtained, a brawny indurated plaque resulting from one application. During the repetition the patient chanced to sleep with her forehead resting on a patch test being made with 50 per cent solution of "Avertin Fluid." Two days later a miliary papular eruption appeared over the contact area on the forehead. In order to determine whether the "Avertin" or its solvent, amylene hydrate, was the cause of the sensitization, patch tests were made with the latter in the same dilutions. These were negative.

The patient was instructed to use rubber gloves over cotton gloves in making up and administering the anesthetic, a precaution heretofore not observed. Following the use of a 6 per cent crude coal tar ointment and small doses of x-rays, and the protective measures, the eruption cleared up in three weeks. Exposure to extremely minute amounts of "Avertin," as, for example, the handling of her operating room gown without gloves, has, however, resulted in definite recurrences. These have cleared up on the resumption of protective measures. Attempts at desensitization with crystalline Avertin itself were contemplated but have not been done, as the patient is at the present time free from eruption under the precautions observed.

With "Avertin Fluid" in dilutions of 25, 50 and 100 per cent, patch tests were made on a series of ten patients attending the clinic because of nonallergic dermatoses. In one instance a mildly positive reaction was noted with a 100 per cent solution in a patient who gave no history of exposure to the drug. A patch test with amylene hydrate was negative on this patient.

With the patient's serum taken at the time of the eruption, attempts were made at passive transfer, a slight modification of the Prausnitz-Küstner[3] method being used. This consisted of the application of the antigen to the site of the injection of the sensitive patient's serum as a patch rather than a scratch or intradermal test. Attempts made in three patients were unsuccessful.

As has been pointed out by Kesten and Laszlo,[4] occupational dermatitis and dermatitis venenata in most instances result from a local cellular sensitization to specific nonproteins acquired by previous contact. The contact with the sensitizing substance is often long and repeated before evidence of sensitization appears. Attempts to demonstrate circulating antibodies, however, by the passive transfer method in sensitized patients have

---

From the Department of Dermatology and Syphilology, University of Pennsylvania School of Medicine, John H. Stokes, M.D., director.

[1] Bruger, Maurice; Bourne, Wesley, and Dreyer, N. B.: Effects of Avertin on Liver Function, Am. J. Surg. **9:** 82-87 (July) 1930.

[2] Jadassohn, J.: Hautkrankheiten bei Stoffwechselanomalien, Fifth Internat. Dermat. Kong., Berlin, 1904, pt. 2, p. 231.

[3] Prausnitz, C., and Küstner, H.: Studien über die Ueberempfindlichkeit, Zentralbl. f. Bakt. **86:** 160, 1921.

[4] Kesten, Beatrice, and Laszlo, Elizabeth: *Dermatitis Due to Sensitization to Contact Substances*, Arch. Dermat. & Syph. **23:** 221-237 (Feb.) 1931.

given uniformly negative results. In the case reported, the exposure to the sensitizing agent, "Avertin," had been repeated and prolonged over a period of eleven months before any evidence of sensitization appeared. As the sensitization is probably confined to the cells of the epidermis, the attempts to demonstrate general sensitization by passive transfer methods would be expected to yield negative results.

SUMMARY

A case of contact dermatitis occurred in an anesthetist due to acquired local sensitization to "Avertin" (tribromethyl alcohol), a drug used for general anesthesia. Attempts at passive transfer were unsuccessful, the sensitiveness being established by patch test.

A PUMP AND MANOMETER FOR ADMINISTERING ARTIFICIAL PNEUMOTHORAX

T. T. Wang, M.D., and C. M. Van Allen, M.D.
Peiping, China

This instrument has been used by us for induction of pneumothorax in 30 cases of pulmonary tuberculosis and for refills of air on more than 553 occasions. It is preferred to the standard types of apparatus for giving artificial pneumothorax, which employ columns of water in bottles to displace air into the chest, because it is smaller, the operation is simpler, the air is under much more delicate control, the intrapleural pressure may be read more conveniently during the introduction of air, and the U-tube of the manometer is filled and refilled with water more easily. The pump can be used for various other clinical purposes as well, since it is capable of driving efficiently either gases or fluids.

The mechanical details of the pump have been described elsewhere,[1] and it is necessary here to point out only the chief characteristics. The pump consists of a wheel 14 cm. in diameter mounted vertically on a base, with shaft and bearings. A driving handle is attached to the shaft. A number of rollers are mounted at regular intervals along the periphery of the wheel, and they meet and press against a rubber tube, which lies in a semicircular track below the wheel and is fastened to short metal tubes at both ends of the track. Each metal tube has two arms for outside connections, one of which extends to the back and is guarded by a stopcock. An automatic counter records the number of revolutions of the wheel. Pumping is accomplished by turning the handle: the rollers drive the air in the tube ahead continuously and the elastic recoil of the tube draws more air in behind. The direction of pumping can be reversed merely by turning the handle backward. All parts of the pump except the rubber tube are metallic and durable, and the tube can be renewed easily.

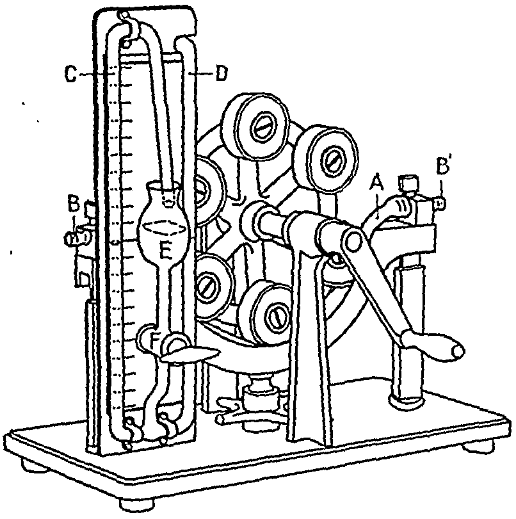


Fig. 1.—Front oblique view. The pump is shown partly covered on the left by the manometer. *A* indicates the rubber tube, which is compressed by the rollers, and *B* and *B'* the metal tubes to which it fastens. *B* serves for connection of the rubber tube leading to the pneumothorax needle (not shown). *C* and *D* are the distal and proximal limbs, respectively, of the U-tube of the manometer. *E* is the reservoir and *F* the stopcock for filling the U-tube.

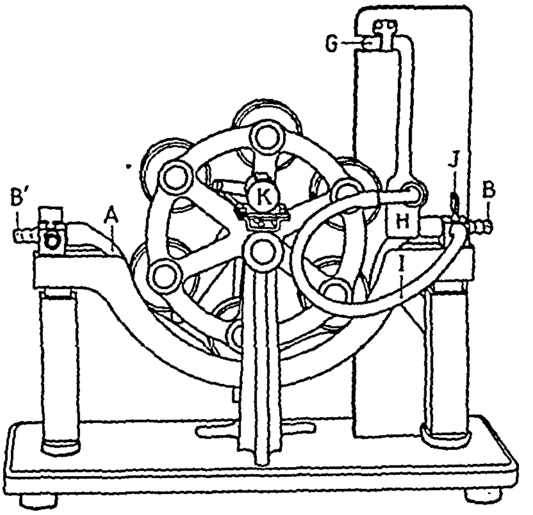


Fig. 2.—Back view. *A*, *B* and *B'* are the same as in figure 1. The proximal limb of the U-tube of the manometer appears at *G* from the front. *H* is the trap and *I* the connection to the side arm of tube, *B'*. *J* is the stopcock guarding that arm. *K* is the automatic counter.

The manometer is described here for the first time. It is carried on the left side of the pump. A small reservoir occupies the center of the manometer, with connection below to the bend and above to the distal limb of the U-tube. A stopcock is situated in the connection below the reservoir. The proximal limb of the U-tube passes above to a trap on the back of the manometer, the trap being connected in turn to the back arm of the metal tube on the same side of the pump. An adjustable scale lies behind the distal limb of the U-tube, with graduations reading from + 20 to — 20 cm. of water pressure.

The pump is calibrated simply, as follows: The stopcocks of both metal tubes are turned off and a piece of rubber tubing is attached to each of the two free arms of those tubes. The rubber tube on the right is led to water in a flask, while that on the left is led to an empty graduated cylinder. Pumping is then started, and the moment that water begins to appear in the cylinder the automatic counter is set at zero. Pumping is continued until a certain large amount of water has been displaced, for example, 500 cc. The number of revolutions is now read and the displacement per revolution, or per hundred revolutions, is calculated. This figure is applicable with sufficient accuracy in estimating the amount of air delivered for pneumothorax. Recalibration is necessary only at intervals of one or two months. The manometer is prepared for use by pouring water into the reservoir until full, opening the stopcock below the reservoir to allow the U-tube to fill, and closing the stopcock when the fluid levels in the U-tube reach the zero mark of the scale. Slight further adjustment can be made if necessary by sliding the scale up or down. At any time that the water in the U-tube is accidentally thrown out through the distal limb because of a sudden increase of pressure, it is automatically caught in the chamber and can be used again. Should the water be displaced from the U-tube in the opposite direction, it is caught in the trap and prevented from reaching the patient.

Additional apparatus consists in a pneumothorax needle of standard pattern and a few feet of rubber tubing to connect the needle to the free arm of the left metal tube of the pump. This rubber tubing is in two sections, joined together by a short glass tube filled with loosely packed cotton, and the cotton serves to filter the air. The needle and the section of tube next to it are the only parts that need to be sterile. With these attachments made, the counter is set at zero, the stopcock on the

---

From the Department of Medicine and the Department of Surgery, Peiping Union Medical College.

A few of these instruments may be obtained from the Peiping Union Medical College, Precision Shop.

[1] Van Allen, C. M.: A Pump for Clinical and Laboratory Purposes Which Employs the Milking Principle, J. A. M. A. **98**: 1805 (May 21) 1932.

left metal tube is opened, and the needle is inserted in the chest wall. Arrival of the needle's point in the pleural cavity is indicated by characteristic oscillations of the water in the manometer. Without further adjustment, pumping is begun and carried on at an appropriate rate. It is stopped momentarily at any time that the intrapleural pressures require reading, since the manometric values during pumping are necessarily slightly elevated and only a moment of rest is required for equalization. A series of many readings is secured in each case, so that the changes in pressure during administration can be used as one of the guides for determining the amount of air to be given.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

TRIPHAL.—A product consisting essentially of sodium aurothiobenzimidazole carboxylate, $C_6H_3N{:}NHCSAu.COONa$, with a small amount of a product of indefinite composition. The sodium salt of a compound formed by the interaction of gold halides with thiobenzimidazole carboxylic acid. Triphal contains from 44 to 47 per cent of gold.

Actions and Uses.—Proposed for use as a gold salt in the treatment of lupus erythematosus. Foci of infection, if present, should be removed before beginning treatment with triphal. It is contraindicated in pregnancy, kidney disease, acute progressive pulmonary tuberculosis and intestinal tuberculosis. Patients receiving triphal should be kept away from strong sunlight and should receive no actinotherapy. Generalized pruritus may result from idiosyncrasy or metallic retention. The development of erythema or albuminuria indicates intolerance to the drug; on its appearance triphal should be discontinued and intravenous injections of sodium thiosulphate instituted.

Dosage.—For adults, initial dose, intravenously, 0.025 Gm. (3/8 grain), the dose being gradually increased to 0.1 Gm. (1½ grains) for children, average initial dose, 0.01 Gm. (1/6 grain), gradually increased, if possible, to 0.025 Gm. (3/8 grain) three times weekly.

Manufactured by H A. Metz Laboratories, Inc., New York. U. S. patent 1,558,584 (Oct. 27, 1925; expires 1942). U. S. trademark 188,475.

Ampules Triphal, 0.025 Gm.

Ampules Triphal, 0.1 Gm.

Triphal occurs as a light yellow, odorless powder, readily soluble in cold water, insoluble in alcohol and ether. An aqueous solution of Triphal is slightly alkaline in reaction, is stable for only a short time, and is readily decomposed by heat. On addition of mineral acids to solution, a precipitate is produced, soluble on addition of excess alkali solution.

Dissolve 0.1 Gm. triphal in 1 cc. water; a clear solution results. Transfer 1 cc. of triphal solution (1: 200) to a clean test tube containing a freshly prepared solution of sodium stannite (prepared by adding sufficient stannous chloride slowly to 2 cc. of dekanormal sodium hydroxide solution, until the precipitate barely dissolves). Gently heat the solution to the boiling point; a metallic mirror is formed. To 3 cc. of solution (1: 200) add 1 cc. dekanormal sodium hydroxide solution and 0.15 cc. freshly prepared phenylhydrazine hydrochloride solution (1: 10); a blue color is produced, which appears reddish in reflected light. To 4 cc. of the solution (1: 200) add 0.15 cc. alkaline mercuric potassium iodide solution; a pronounced yellowish color is produced. Dissolve 0.1 Gm. of triphal in 3 cc. water, add 0.2 cc. of diluted acetic acid, and filter; the filtrate shows no brown coloration after adding 0.1 cc. of sodium sulphide solution. To 2 cc. of solution (1: 50) add 0.2 cc. diluted nitric acid and filter; to one half of the filtrate add 0.2 cc. barium nitrate solution; no precipitate occurs (*sulphate*); to the other portion of acidified solution add silver nitrate solution; not more than a faint turbidity appears (*halides*). To 4 cc. of triphal solution (1: 100) add 0.2 cc. sodium nitrite solution and 0.2 cc. diluted hydrochloric acid, followed by the addition of sufficient betanaphthol solution (0.01 Gm. in 5 cc. of sodium hydroxide solution) that the precipitate formed redissolves; no red color appears. Ignite 0.1 Gm. of triphal in a porcelain crucible, extract the residue with normal hydrochloric acid, and filter; the filtrate gives a characteristic sodium flame test and yields a white precipitate with a solution of barium chloride.

Dry about 0.1 Gm. of triphal, accurately weighed, for eight hours at 100 C. The loss in weight should not be more than 8.0 per cent nor less than 6.0 per cent of sample weight.

Transfer approximately 0.2 Gm. triphal, accurately weighed, into a tared porcelain crucible, and ignite well at red heat. Extract the residue with six 5 cc. portions of normal hydrochloric acid solution; filter each portion through an ashless filter paper. Transfer the remaining residue to the filter and wash with five 3 cc. portions of water. Transfer filter and residue to crucible, dry, and ignite to constant weight. The weight of the residue corresponds to not more than 50.0 per cent and not less than 47.8 per cent of gold, calculated to the dried basis.

LIVER MEAL.—A mixture containing desiccated beef liver 81 per cent, malted milk 18 per cent, and powdered cinnamon 1 per cent.

Actions and Uses.—Liver meal is prepared to meet the need of a concentrated liver diet in a form that is palatable and convenient.

Dosage.—For children, one heaping teaspoonful three times daily; for adults, two heaping teaspoonfuls three times daily. Liver meal may be added to milk, soups, cereals or fruit juices but should not be cooked or boiled.

Manufactured by the Livermeal Corporation, Hoboken, N. J. No U. S. patent or trademark.

To prepare liver meal, fresh beef liver is ground and then coagulated in air-tight kettles at a temperature of 82 C. The liver is dehydrated in vacuo and powdered. The malted milk and powdered cinnamon are then added and thoroughly mixed. The manufacture is so regulated that no batch is more than thirty days old when shipped. The malted milk used complies with the government standard and has approximately the following composition: carbohydrates, 71.22 per cent; proteins, 14.48 per cent; fat, 8.15 per cent; ash, 3.43 per cent, and water, 2.72 per cent.

Liver meal is a light brown powder having a slight odor and taste of liver.

SCARLET FEVER STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1932, p. 364). The National Drug Co., Philadelphia.

Scarlet Fever Streptococcus Antitoxin Refined and Concentrated (National).—It is prepared by inoculating horses with scarlet fever streptococcus toxin and live virulent cultures of scarlet fever streptococci, under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. It is marketed in syringe packages of 2,000 units (prophylactic dose); in syringe packages of 6,000 units (therapeutic dose); also marketed in single 1 cc. vial packages (for the diagnostic blanching test) containing sufficient scarlet fever streptococcus antitoxin for five tests.

Committee on Foods

GENERAL COMMITTEE DECISIONS

The Committee on Foods authorizes the publication of the following General Committee Decision adopted for its own guidance and for that of food manufacturers and advertising agencies on food advertising.

Raymond Hertwig, Secretary.

VITAMIN AND MINERAL CONTENT OF DRIED VEGETABLES

To be acceptable, dried vegetables, either powdered or in other form, shall retain in highest degree possible with effective manufacturing methods the vitamin and mineral content of the raw vegetables. Products with materially reduced vitamin or mineral content may be accepted provided they are accompanied by labels and advertising prominently and appropriately declaring the vitamin or mineral content with respect to that of the natural vegetable used.

REPORTS OF THE COMMITTEE

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

UFFELMANN'S RYE BREAD

Manufacturer.—The Uffelmann Baking Company, Cincinnati.

Description.—Rye bread made by the straight dough method (method described in The Journal, March 12, 1932, p. 889); prepared from "clear" wheat flour, white and dark rye flours, water, yeast, salt, caraway seed and a sour ferment consisting of dark rye flour and water.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.8
Ash	1.9
Fat	1.5
Protein (N × 6.25)	9.9
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	49.4

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—A rye bread of good quality.

MEAD'S FLORENA

(Partially Dextrinized Wheat Flour)

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—Partially cooked and moderately baked patent wheat flour.

Manufacture.—Patent wheat flour in cotton bags is immersed in boiling water; a gelatinous surface layer is formed which prevents permeation of the water through the flour. The interior flour in a fairly dry condition is cooked for three hours. The bags are removed from the water and baked at a low temperature for five hours. The partial cooking and moderate baking rupture the starch granules and partially dextrinize the starch, thereby rendering the carbohydrate content more readily digestible.

During the baking, the gelatinous surface coating is changed into a hard crust. The bag and crust are removed and discarded. The inner portion of caked dried flour is ground to a fine powder of light tan color. The powder is again heated to reduce the moisture content and is packed in tin containers.

Analysis (submitted by manufacturer).—

	per cent
Moisture	4.5
Ash	0.5
Fat	1.0
Protein (N × 5.7)	9.2
Crude fiber	0.3
Dextrins (alcohol precipitation method)	6.0
Carbohydrates other than crude fiber (by difference)	84.5

Calories.—3.8 per gram; 108 per ounce.

Claims of Manufacturer.—A partially dextrinized wheat flour for use in infant feeding. Especially indicated (1) as a routine cereal diluent, (2) in cases of sugar intolerance, (3) as a base for "butter-flour mixtures," and (4) for high starch feedings.

GOLDEN KEY EVAPORATED MILK

Manufacturer.—Pet Milk Company, St. Louis.

Distributor.—Golden Key Milk Products Corp., St. Louis.

Description.—This is the same product as Pet Evaporated Milk (THE JOURNAL, Nov. 15, 1930).

FRENCH LICK PURE TOMATO JUICE

Manufacturer.—Tomato Products Company, Paoli, Ind.

Description.—Canned or bottled tomato juice retaining in high degree the vitamin content of the raw juice; seasoned with salt.

Manufacture.—Tomatoes are placed in a tank of water to loosen field dirt, are thoroughly washed by high pressure water sprays and are inspected on sorting tables; sound ripe tomatoes, trimmed of green portions if necessary, are selected for the tomato juice and transferred to the pressing apparatus, a cylindric screen with paddles, which rub the fruit against the screen. Live steam surrounds the apparatus and prevents the inclusion of air. The juice from the first screen is passed through a much finer screen to reduce the size of the particles and eliminate any coarse fibrous material. The juice is drawn through a continuous deaerating apparatus by means of reduced pressure in which it is sprayed into a "high vacuum" chamber, thus eliminating most of the dissolved or incorporated air. It is transferred to storage tanks through the bottom to avoid splashing and inclusion of air. A small amount of salt is added, and each batch is brought to a temperature of 71 C. as rapidly as possible. It is filled into bottles or cans, hermetically sealed, processed in hot water (No. 1 tins for twenty minutes at 93 C.), and immediately cooled.

Analysis (submitted by manufacturer).—

	per cent
Moisture	94.4
Total solids	5.6
Ash	0.7
Salt	0.3
Fat	0.0
Protein (N × 6.25)	1.2
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	3.3

Calories.—0.2 per gram; 6 per ounce.

Vitamins.—The use of mature tomatoes, the careful factory control, the continuous method of manufacture, the exposure of the fruit juice to an atmosphere of steam only in the factory equipment, and the withdrawal in the "vacuum" treatment of air naturally occurring in the juice assure maximum retention of the natural vitamin content.

Claims of Manufacturer.—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C. It is recommended for general table use and as an accessory vitamin C food for infant feeding.

N. J. C. BRAND PANCAKE SYRUP

(85 Per Cent Corn Syrup, 15 Per Cent Refiners' Syrup)

Packer.—D. B. Scully Syrup Company, Chicago.

Distributor.—Northern Jobbing Company, Chicago and St. Paul.

Description.—A table syrup; a corn syrup flavored with refiners' syrup.

Manufacture, Analysis, Calories, Claims of Manufacturer.—See these sections for Banner Blue Corn Syrup with Cane Flavor (THE JOURNAL, March 5, 1932, p. 817).

HIRES ROOT BEER

(Concentrated Extract and Flavoring for Preparation of "Root Beer")

Manufacturer.—Charles E. Hires Company, Philadelphia.

Description.—A water solution or suspension of caramel and aqueous extracts of sassafras, sarsaparilla, licorice and ginger roots, juniper berries, dog grass, birch bark, hops, spikenard and pipsissewa herbs, vanilla beans and wintergreen and deer tongue leaves; for the preparation of "root beer" and fountain syrup beverages.

Manufacture.—The raw materials from various countries are ground in a root mill and extracted with a solution of water and alcohol. The alcohol is distilled off; the resulting aqueous extract is diluted with water to precipitate out some of the gums and resinous matter that would interfere with the preparation of a clear beverage. Caramel is added and the final mixture packed in containers.

Analysis (submitted by manufacturer).—

	per cent
Total solids	30.9
Ash	0.7
Nitrogen	0.1
Volatile oils	0.9
Sucrose	0.0
Reducing sugars, before inversion as dextrose	5.9
Reducing sugars, after inversion as dextrose	5.9
Non-sugar solids (caramel and organic plant extractives)	24.3
Alcohol	absent
Alkaloids	absent
Saponin	absent
Coal tar color	absent

Claims of Manufacturer.—A concentrated extract for the preparation of the table beverage "root beer."

HUMMER HIGHEST PATENT FLOUR
MENU HIGHEST PATENT FLOUR

Manufacturer.—Slater Mill & Elevator Company, Slater, Mo.

Description.—An "all purpose" short patent flour prepared from soft red wheat; bleached.

Manufacture.—Selected soft red wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended, bleached with one-eighth ounce mix of benzoyl peroxide and calcium phosphate and one-fourth ounce of chlorine per barrel, and automatically packed in cotton and paper sacks.

Analysis (submitted by manufacturer).—

	per cent
Moisture	10.4
Ash	0.33
Fat (ether extraction method)	0.8
Protein (N × 5.7)	9.5
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	78.5

Calories.—3.6 per gram; 102 per ounce.

Claims of Manufacturer.—An "all purpose" short patent flour for general baking uses.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, AUGUST 13, 1932

TEETH AND THE DIET

Within the last few years, considerable experimental data have accumulated showing that dental caries can be prevented or controlled by eating the proper foods. Among the more extensive reports may be mentioned [1] those of Bunting and his collaborators at Ann Arbor, Mellanby in England, Boyd, Drain and Nelson in Iowa City, and Hanke in Chicago. Taken collectively, these experiments demonstrate that dental caries may be considered largely as a dietary deficiency disease, a statistical fact of peculiar significance because of the amenability of this class of disorders to treatment. More striking, perhaps, is the insinuation that the complacent attitude of many persons relative to the supposed adequacy of the "average" American diet may be wholly unfounded. In a brief report of the incidence of caries in 1,192 children in public schools and orphanages in Michigan, tooth decay has been found by Bunting, Jay and Hard [2] in from 80 to 99 per cent of the children in the various groups that were studied. Active caries was noted in from 72 to 90 per cent of the public school children examined again at the end of a year, the number of teeth affected averaging from three to four for each child. There is reason to believe that the status of the teeth in Michigan children is not unique but could be duplicated in most other communities in this country. From the standpoint of the dietary requirements for good tooth formation and preservation, it would seem that the food we eat may not be wisely selected.

Although the importance of nutrition in dental and oral hygiene has been established, a recent commentator [1] has pointed out the wide existing differences of opinion regarding the particular dietary principle or group of factors responsible for the beneficial results. Some investigators have emphasized the rôle of vitamin C, pointing to the response of the teeth and gums in experimental scurvy. Others, reasoning that the metabolism of the teeth, like that of the bones, is governed by vitamin D, consider the antirachitic factor as the responsible agent. There is experimental evidence to support each assumption. Hess and Abramson,[3] however, have pointed out that poor teeth are prevalent in geographic situations where the diet is such that it precludes the possibility of deficient intakes of vitamins C or D.

Other hypotheses have sought to correlate bad teeth with the consumption of excessive amounts of sugar, with the ingestion of foods that have a potentially acid ash, and with various phenomena not directly dependent on the diet. Klein and McCollum [4] suggest that the ratio of dietary calcium to phosphorus is important, caries in rats occurring when there is a relative deficiency of phosphorus. Their results promise to explain some of the anomalies now present in the literature.

To formulate actual menus with something more than rule of thumb as a guide or to provide substitute foods when certain recommended articles are economically, geographically, seasonally or otherwise unobtainable will require a knowledge of the chemical ingredients of the diet that are necessary to insure good teeth. Such specific information has not as yet been acquired. Adequately controlled tests on human subjects cannot be done readily, and the interpretation of the work accomplished at present is difficult. Recourse to animal feeding experiments, a method employed with signal success in the elucidation of nearly all the dietary deficiency diseases so far investigated, is beset with unusual difficulties when applied to the study of the effect of diet on the teeth. As is well known, the prominent incisors of rodents grow from persistent pulps, and other teeth likewise may not be precisely analogous to either the deciduous or the permanent teeth of man. In addition to the structural differences there are a number of metabolic variations between species that limit experimental procedure. The rat thrives on diets devoid of vitamin C, and the guinea-pig, although susceptible to scurvy, is resistant to a deficiency of the antirachitic factor. Because of such handicaps, extreme caution must be applied before experimental results with animals can be interpreted in terms of human experience.

The results of studies of children, however, are at least unanimous in showing that efforts to provide an improved diet are in the main rewarded with increased resistance to tooth decay. This in itself is cause for gratification and should be an incentive to further study. Whether the prophylactic substance is one of the vitamins or some other factor, either known or as yet unrecognized, or even a combination of these in optimal amounts, must await future research.

---

[1] Kesel, R. G.: What Do We Know About Dental Caries? A Critical Review of Recent Investigations, J. Am. Dent. A. **19**: 903 (June) 1932.

[2] Bunting, R. W.; Jay, P., and Hard, D. G.: Observations in the Examination of the Mouths of 1,192 Children in Public Schools and Institutions, J. Dent. Res. **12**: 444 (June) 1932.

[3] Hess, A. F., and Abramson, H.: The Etiology of Dental Caries, Dental Cosmos **73**: 849 (Sept.) 1931.

[4] Klein, Henry, and McCollum, E. V.: A Preliminary Note on the Significance of the Phosphorus Intake in the Diet and Blood Phosphorus Concentration, in the Experimental Production of Caries-Immunity and Caries-Susceptibility, Science **74**: 662 (Dec. 25) 1931.

THE RELATIVE EFFICIENCY OF VITAMIN D PREPARATIONS IN DIFFERENT SPECIES

The discovery of the antirachitic potency of viosterol (irradiated ergosterol) created the hope that the strength of each of the many specifics for the treatment of rickets could be simply expressed in terms of a pure chemical substance. As is well known, the question of the proper dosage of viosterol led to the present knowledge of the exceedingly small amounts effective in the prevention or cure of rickets, and the hypercalcemia, pathologic calcification of the blood vessels and soft tissues, and other symptoms constituting the picture of hypervitaminosis due to enormous overdosage of this substance.[1] But the variations in potency of different preparations, coupled with the previous lack of information regarding the chemical structure of vitamin D, led in this country and elsewhere to the abandonment of gravimetric units and the substitution of direct biologic assay in which the strength of each preparation is expressed in terms of rat units per gram. Clinical experience soon revealed that various products of equivalent antirachitic potency, as judged by the rat test, possessed markedly different values for the treatment of infants. Some time ago, Hess[2] reported that a viosterol preparation, equivalent to approximately ten teaspoonfuls of cod liver oil, did not suffice to prevent typical roentgenologic signs of rickets in children. While the infant requires only twenty times as much cod liver oil as the rat, on the basis of equal weights, about sixty times as much viosterol is necessary. There is some evidence indicating that irradiated milk, or milk from cows fed irradiated yeast, is somewhat more efficient in the child than in the rat, when cod liver oil is the basis of comparison. To protect the average child from rickets, Hess and his collaborators find that about one liter of suitably activated milk, 15 cc. of standard cod liver oil, or ten drops of viosterol is sufficient. In terms of rat units these quantities are respectively 160, 200 and 830; that is, for each rat unit in the form of activated milk, 1.25 units as cod liver oil or 5.2 units as viosterol is required. These variations are accentuated when, instead of the infant, the response of the fowl is studied.

Such differences in effectiveness of the antirachitic factor in various species may be due to inherent difficulties in the biologic method of assay, to the widely differing types of food ingested by various species, to altered utilization of the vitamins because of possible variations in absorption, or, perhaps, to variations in the pathogenesis of rickets in different species. Regardless of the causes, these differences can readily be compensated for by altering the dosage in accordance with experimental facts. The differences in pharmacologic activity, therefore, should not be construed as evidence purporting to discount the value of viosterol.

Confirming and amplifying previous reports, the recent experiments of Steenbock, Kletzien and Halpin,[3] on the relative antirachitic potency of various vitamin D preparations for chickens, offer a new interpretation for these phenomena. When 1 per cent of cod liver oil, of standard strength, was incorporated in a rachitogenic diet, rickets was prevented. In comparison, protection was also afforded by from 7.5 to 60 times as many rat units in the form of irradiated yeast, and by 40 to 120 times, as irradiated ergosterol. Burbot liver oil, however, had the same value as cod liver oil in both rats and chickens. Further experiments were performed to test the hypothesis that some substance in fish liver oils might increase the efficiency with which vitamin D functions. Excessive amounts of irradiated ergosterol, whether dissolved in cod liver oil or corn oil, produced about the same degree of hypervitaminosis; hence the toxic effects of the antirachitic factor were not affected by the nature of the solvent. Therapeutic doses gave similar results, although the amount of cod liver oil in which the ergosterol could be dissolved was necessarily limited. The liver oil, fortified so that 0.1 or 0.05 per cent of the diet had the equivalent in rat units of 1 per cent cod liver oil, produced no increased deposition of bone ash above that observed in rachitic birds. The Wisconsin investigators[3] therefore conclude that the vitamin D produced by ordinary irradiation of ergosterol with a quartz mercury lamp is a different substance from that found in cod liver oil. It will be recalled, in this connection, that it was observed[4] in 1929 that provitamin D activity is not necessarily limited to ergosterol but may be a general property in varying degrees of different sterols.

In view of the studies of the relative values of irradiated products as compared with cod liver oil in different species, it would be interesting to know the efficiency of direct irradiation in the same animals. Although the presence of a skin protected by fur or feathers, as well as other considerations, offers experimental difficulties to the securing of quantitative data, it is known that such therapy is effective in all species. Pediatricians on more than one occasion have noted the effectiveness of direct irradiation of infants as contrasted with the occasional appearance of craniotabes and other signs of mild rickets in infants supposedly protected by adequate doses of cod liver oil or viosterol. So striking are these and other discrepancies that some clinicians go so far as to consider the antirachitic factor as something distinct from a vitamin or similar food constituent. Further study of the problem along the lines suggested by the concept of multiple vitamin D paring a wild rabbit for cooking The husband developed the oculoglandular form of the disease, the wife became ill at approximately the same time with ulceroglandular tularemia The specific agglutination tests were strongly positive in both instances Two other cases of ulceroglandular tularemia have been encountered at the same clinic Granstrom directs particular attention to the close similarity of the symptoms and signs of Parinaud's disease and oculoglandular tularemia He states that many cases which had been diagnosed as Parinaud's disease were later proved to be cases of "conjunctivitis tularensis"

---

[1] These data are discussed in detail in the paper of Clouse, Ruth C.: Vitamin D, J. A. M. A. **99**: 215 (July 16), 301 (July 23) 1932.

[2] A recent discussion of this subject is presented in Growth and Development of the Child: Part III, Nutrition (Report of the Committee on Growth and Development, White House Conference on Child Health and Protection), Century Company, New York, 1932, Vitamin D, pp. 157-176.

[3] Steenbock, Harry; Kletzien, S. W. F., and Halpin, J. G.: The Reaction of the Chicken to Irradiated Ergosterol and Irradiated Yeast as Contrasted with the Natural Vitamin D of Fish Liver Oils, J. Biol. Chem. **97**: 249 (July) 1932.

[4] Koch, F. C.; Koch, E. M., and Ragins, I. K.: Fractionation Studies on Provitamin D, J. Biol. Chem. **85**: 141 (Dec.) 1929.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10 45 to 10 50 a m over Station WBBM (770 kilocycles, or 389 4 meters) The Columbia chain program has been discontinued for the present

The subjects for the week are as follows

August 15 Bootleg Milk
August 17 School Days Are Here Again

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10 45 to 11 over Station WBBM

The subject for the week is as follows

August 20 Vacation Health

This schedule is based on Chicago Daylight Saving Time, one hour faster than Central Standard Time

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities, new hospitals, education public health, etc)

ARIZONA

Society News—Officers elected at the recent annual session of the Arizona Public Health Association are president Dr Alvy N Crain, director, Maricopa County health unit, vice presidents, W J Jamieson, city engineer of Phoenix, and Dr Raphael B Durfee, county health officer, Bisbee, and secretary, Jane H Rider, director, state laboratory, Tucson Dr Charles E Irvin, Miami presided as toastmaster at the dinner, and Dr Fred T. Foard, U S Public Health Service, spoke

CALIFORNIA

Society News—The San Francisco County Medical Society was addressed, August 9, among others, by Drs Norman N Epstein and Sarkis B Paul, San Francisco, 'Treatment of Syphilis by Means of Hyperpyrexia Produced by Diathermy "——Dr Camille Kereszturi, New York gave an illustrated address on "The Use of B C G Vaccine" before the Trudeau Society, Los Angeles, August 2

Clams Now Poisonous.—Recent laboratory examinations disclosed that all clams, with the exception of mudclams, as well as mussels from certain sections along the coast of California are now poisonous The state department of health has therefore established a quarantine, prohibiting the sale or offering for sale of all clams, with the exception of mudclams, in the coastal area from Monterey County to the Klamath River in Del Norte County, excluding San Francisco Bay This quarantine will be in effect until September 30 Mussels and clams in the San Francisco Bay waters do not show signs of toxicity, as do shellfish in ocean waters However, the bulletin of the state board reports, this action does not affect a permanent quarantine on clams in San Francisco Bay, which was established, May 28, because of sewage pollution of the bay waters The order also includes mudclams

COLORADO

Society News.—Dr Harold B Henderson, Denver, addressed the Larimer County Medical Society, July 6, on 'Practical Points in Gynecology "——At the meeting of the Otero County Medical Society in Rocky Ford, July 14, Dr Elmer L Timmons, Colorado Springs, talked on pediatrics, and Dr William P McCrossin, Jr, Colorado Springs, cervicitis, including etiology, diagnosis and treatment

State Medical Meeting at Estes Park.—The sixty-second annual session of the Colorado State Medical Society will be held at the Stanley Hotel, Estes Park, September 8-10, under the presidency of Dr Edward Delehanty, Denver Guest speakers included on the scientific program are Drs Theodore H Weisenburg, professor of neurology, Graduate School of Medicine, University of Pennsylvania, "Recent Advances in the Commoner Nervous Diseases', Edward H Skinner, Kansas City, "Relation of Roentgenology to Other Fields of Medical Practice', Isaac A Abt, professor of pediatrics, Northwestern University Medical School, Chicago, "Pneumonia in Childhood" and Frank D Dickson, Kansas City, "Low Back Injuries with Particular Reference to the Part Played by Congenital Abnormalities" Among other Colorado physicians participating in the program will be Drs Maurice Rees, dean, University of Colorado School of Medicine, Denver, "Recent Progress in Medicine', Carl W Maynard, Pueblo, "Cholecystectomy and Its Surgical Pathology', Clyde T Knuckey, Lamar, 'Obstetrics from the Standpoint of the General Practitioner,' and Marcus O Shivers, Colorado Springs, "Means and Methods of Goiter Prophylaxis' Dr Edward H Cary, Dallas, Texas, President, American Medical Association, will deliver an address at the annual banquet In addition to the golf tournament, a program of entertainment has been arranged

GEORGIA

Society News—Dr John L Elliott, Savannah, addressed the Georgia Medical Society, June 14, on "Hyperemesis Gravidarum'——The Ocmulgee Medical Society was addressed at Hawkinsville June 17, by Drs Wallace L Bazemore and Charles H Richardson Jr, Macon on transurethral prostatic resection and acute conditions in the abdomen, respectively ——At a meeting of the Randolph County Medical Society in Cuthbert July 7, Dr Clarence R Bennett, Eufaula Ala spoke on 'Aortitis and Aortic Insufficiency'——The Thomas County Medical Society was addressed in Thomasville, June 22, by Drs Simeon E Sanchez Barwick, on 'Anemia in Pregnancy,' and Charles H Watt Thomasville, "Acute Osteomyelitis ——The Sixth District Medical Society was addressed June 29, at Indian Springs among others, by Drs Bernard McH Cline, Atlanta, on 'Peroral Endoscopy in Relation to General Medicine and Ernest Corn, Macon, Transurethral Resection of the Prostate'——Dr Evert A Bancker Jr Atlanta read a paper on Coronary Disease before the Fulton County Medical Society August 4 Dr Bernard L Shackleford gave a clinical talk on "Reflex Conditions"

ILLINOIS

Health Exhibit at State Fair—Plans have been completed by the state department of public health for displaying at the Illinois State Fair in Springfield, August 20 27, the most extensive and comprehensive health and sanitary exhibit ever presented in connection with the event, the *Illinois Health Messenger* reports The displays relate to milk, water, diet, laboratory procedures insect pests personal hygiene and various specific diseases such as smallpox typhoid, cancer, heart disease pneumonia tuberculosis, diphtheria, scarlet fever and rabies A baby conference which is undertaken as a demonstration, it was stated, will be held in connection with the exhibit Children from 6 months to 10 years of age are eligible for registration and examination

One Case of Diphtheria in Twelve Years—At the Mooseheart School, Mooseheart, which has an enrolment of about 1,500, there has occurred only one case of diphtheria since 1920, and not a case of scarlet fever since 1926, among the tested and immunized students There have been no cases of diphtheria at the Soldiers Orphans Home, Normal, which has a constant child population of more than 650, and none of scarlet fever since October of 1929 One case was reported in that year Immunization work started at the home in 1925, and at Mooseheart in 1926. All children present at that time were given the Dick test and treated with the Dick scarlet fever toxin. Since that time all children admitted to the orphans' home have been tested at the time of admission and the reactors immunized. At Mooseheart the testing is done each six months, those previously immunized being retested along with those newly admitted. Drs. Ralph P. Peairs and John D. Nichols are the medical directors, respectively, of the home and of Mooseheart School.

INDIANA

Personal.—Dr. Frank V. Newcomer has been appointed a member of the city board of health to succeed the late Dr. Edward M. Boggess, Elwood. Dr. Newcomer is president of the Elwood Medical Society.——Dr. Thomas J. McKean, Montpelier, was appointed health officer of Montpelier recently to succeed the late Dr. Marion A. Emshwiller.——Dr. Leonard A. Ensminger has been appointed chairman of the department of orthopedic surgery of Indiana University School of Medicine, Indianapolis, and Dr. Raymond C. Beeler has been appointed chairman of the division of radiology, department of surgery. ——Dr. Thurman B. Rice, Indianapolis, addressed the Parke-Vermillion Counties Medical Society, June 22, on "Newer Concepts of Bacteriology."

IOWA

Society News.—The Iowa and Illinois Central Medical Association, at its annual meeting in Davenport, July 14, elected the following officers: Drs. Hugh A. Beam, Moline, president; Harry H. Lamb, Davenport, vice president; Karl W. Wahlberg, Moline, secretary, and John H. Fowler, East Moline, treasurer. Dr. E. Starr Judd, Rochester, Minn., formerly President, American Medical Association, spoke on "Surgery of the Biliary Tract." Other speakers were Drs. John F. Ritter, Maquoketa, on "Nascent Endocrine Therapy"; John H. Peck, Des Moines, "Childhood Tuberculosis," and Fred M. Smith, Iowa City, "Discussion of Certain Aspects in the Treatment of Cardiac Failure." Dr. George Braunlich, Davenport, retiring president, gave his official address.

KENTUCKY

Health Material Available in Libraries.—The state board of health, through its social hygiene division, is asking the cooperation of free public libraries in Kentucky in making available to parents, teachers and others interested in the proper training of children, authoritative material on training for parenthood, character development and child guidance. It is planned to donate about ten new books, from a selected list, to any public library that will definitely establish a social hygiene section and assist in getting these books circulated. The social hygiene division, which is known as the Social Hygiene Association of Kentucky, hopes in this way to form a nucleus which will be augmented from time to time by the library boards as public demand warrants. Included in this offer is a complete set of social hygiene pamphlets for use in the reading rooms. It was stated that fourteen of the seventy public libraries in the state are now so equipped.

MAINE

Society News.—The Hancock County Medical Society was addressed at Bar Harbor, July 20, by Drs. Edward H. Risley, Waterville, "Treatment of Head Injuries," and Francis T. Hunter, Boston, "Modern Treatment of Diseases of the Blood." ——At a meeting of the Somerset County Medical Society at Lake Wesserunsett, June 30, Drs. Elmer D. Merrill, Dover-Foxcroft, and Warren E. Kershner, Bath, president and president-elect, respectively, of the Maine Medical Association, spoke. Dr. Merrill discussed cults from a legislative standpoint, and Dr. Kershner, medical organization. Dr. George R. R. Hertzberg, Stamford, Conn., read a paper on the use of camphor oil as an antiseptic in first aid dressings and in the treatment of burns, ulcers, bed sores and like conditions.

MARYLAND

In Memoriam.—The *Bulletin* of the University of Maryland School of Medicine dedicated its July issue to the memory of Dr. C. Hampson Jones, late professor of hygiene and public health at the school, and commissioner of health of Baltimore.

Increase in Venereal Disease.—An increase of more than 7,000 treatments for venereal disease was noted during the first six months of this year in Baltimore dispensaries, as compared with the number given during the corresponding period of last year, the city department of communicable disease reports. During the month of June, 157 more patients were reported than for the same month last year. In one dispensary, 217 women were treated on one clinic night and 150 in the afternoon of the same day. The current economic condition may be charged with this increase, it was said, because patients in better times would probably go to private physicians for treatment. These dispensaries in the city are manned by six Negro and four white physicians. It is expected that at the present rate of increase it will be necessary for the city clinics to give more than 80,000 treatments by the end of this year, and should conditions not improve these figures will increase to more than 110,000 by the end of 1933. A survey made by the public health service in 1931 showed that more than 10,000 active cases of gonorrhea and syphilis are constantly under treatment in Baltimore, with more than 10,000 new infections each year. The rate among the Negro population is about four times as high as among the white population.

MINNESOTA

Short Courses on Tuberculosis.—July 17 marked the opening this year of the short courses on tuberculosis given throughout the state, through the cooperation of the sanatoriums and the Minnesota Public Health Association. The first course was held at the Otter Tail County Sanatorium at Battle Lake. The second one will be held, August 31, at Buena Vista Sanatorium, Wabasha. Speakers on the program will be Drs. Jay Arthur Myers, Minneapolis; Francis F. Callahan, Pokegama; Walter H. Ude, Minneapolis; Charles N. Hensel, St. Paul; Russell H. Frost, Wabasha, and Edward A. Meyerding, St. Paul. Every physician will be given an opportunity to make examination and diagnosis of several patients under the direct supervision of one of the tuberculosis specialists. Enrolment is limited to twenty-five.

Society Holds Sixty-Fourth Annual Meeting.—Wabasha County Medical Society held its sixty-fourth annual meeting at Plainview, July 7. Dr. William B. Stryker, Plainview, was elected president; Dr. Rudolph C. Radabaugh, Hastings, vice president, and Dr. William F. Wilson, Lake City, secretary. The retiring president, Dr. William F. Wilson, Lake City, spoke on "Some Changes in Thirty-Eight Years"; Dr. George B. Eusterman, Rochester, Minn., "New Developments in the Diagnosis and Treatment of Gastric Cancer and Ulcer"; Dr. Radabaugh, "Osteomyelitis of Humerus Treated with Maggots"; Dr. David G. Gardiner, St. Paul, "Peroral Endoscopy," and Dr. Thomas Myers, St. Paul, "Simplified Infant Feeding." The next annual meeting will be held in Wabasha in July, 1933. A resolution was adopted at the recent meeting providing for reciprocal relations between the Winona and Wabasha county medical societies, and calling for one or more joint scientific and social meetings to be held during the year, alternately in each county.

MISSOURI

Society News.—Dr. George Leonard Harrington, Kansas City, addressed the Jasper County Medical Association in Joplin, June 7, on "Mental Health and Depression."——Dr. Eugene M. Lucke, health officer of Marion County, Hannibal, was elected president of the Missouri Public Health Association, June 10.

Appointments at St. Louis University.—Announcement has been made of the following appointments and promotions in St. Louis University School of Medicine, among others:

PROMOTIONS

Alrick B. Hertzman, Ph.D., associate professor of physiology.
Dr. Florent E. Franke, assistant professor of physiology.
Dr. Alver H. Kerper, assistant professor of anatomy.
Dr. John Anthony Brennan, instructor in internal medicine.
Dr. John J. Hammond, instructor in internal medicine.
Dr. Daniel L. Sexton, instructor in internal medicine.
Dr. Emanuel Sigoloff, instructor in internal medicine.
Dr. Neil S. Moore, instructor in urology.
Dr. George H. Koenig, instructor in urology.
Dr. Carl F. Vohs, instructor in orthopedic surgery.

APPOINTMENTS

Dr. John H. Hershey, assistant in anatomy.
Dr. Raymond O. Muether, assistant in internal medicine.
Dr. James H. Ready, assistant in internal medicine.
Dr. Carl J. Reis, assistant in internal medicine.
Dr. Jerome Diamond, assistant in pediatrics.
Dr. Howard L. Lange, assistant in pediatrics.
Dr. Samuel J. Freund, assistant in surgery.
Dr. Thomas E. McGurk, assistant in surgery.

Dr. Joseph Mülzer of the University of Heidelberg was designated to receive the Carl Barck fellowship in ophthalmology, established a year ago, newspapers state, when the University of Freiburg conferred a golden doctorate on

Dr Barck in appreciation of his fifty years' service in ophthalmology Dr Mulzer will have special research duties in the new Firmin Desloge Hospital Dr Goronwy O. Broun was appointed director of the university hospitals.

NEBRASKA

Hospital News.—The Douglas County Hospital, Omaha, a new institution with 135 beds for tuberculosis and 85 for nervous and mental diseases, was dedicated, June 27 The five-story building was constructed at a cost of about $900,000

Personal.—Dr Otis Merriam Cope, associate professor of physiology and pharmacology in the University of Nebraska School of Medicine, Omaha, has resigned to become professor of physiologic chemistry at the New York Homeopathic Medical College

Society News.—The first scientific meeting of the Southwest Nebraska Medical Society was held in McCook, June 9 Three Omaha physicians made addresses as follows Charles A Owens, Jr, on "Diagnosis of Prostatic Disease", Arthur D Dunn, "Relationship of Paranasal Sinusitis to Systemic Disease," and Herbert H Davis, "Tumors of the Breast"——Dr Ora S Fowler, Denver, addressed the Scotts Bluff County Medical Society, Scottsbluff, June 16, on visceroptosis and nephropexy ——The Northeast Nebraska Five-County Medical Society joined the Madison Six-County society in its June meeting in Norfolk Speakers were Drs Bennie R Farner, Norfolk, on "Accidental Tissue Transplantations", Harry L Harvey, Lincoln, "Recent Developments of Endocrinology as Related to Gynecology," and Arthur E Hertzler, Halstead, Kan, clinical methods of diagnosis and treatment——A Sixth Councilor District Medical Society was organized at Stromsburg, June 27, with Dr Dexter D King, York, as president

NEW JERSEY

Trachoma in Orphanage.—Eighty-two cases of trachoma had been discovered in the state up to the middle of June in the course of an investigation begun after a number of cases were discovered in an orphanage in Mercer County in May The average annual number of cases of trachoma in New Jersey in the last five years was only seventeen The fact that the disease had probably existed in the orphanage for at least two years and that boys had been placed in families throughout the state added to the difficulty of the investigation which has been carried on by the state and local boards of health and the state board of children's guardians

Outbreak of Undulant Fever—Twelve cases of undulant fever were traced to a single herd of cattle, from which milk was sold to nine communities during the summer and fall of 1931, according to an epidemiologic report in *Public Health News* The dealer who sold the milk maintained a herd of high grade cows on his country estate and raw milk was sold at higher prices than those charged by other dealers Investigation revealed that this herd had been affected with contagious abortion at various times between June 1926, and May, 1931, and that several reactors had been slaughtered Eleven of the patients were infected through the use of raw milk or cream from this dairy, and the twelfth case occurred in a veterinarian employed for the infected herd of cattle The dealer installed a pasteurizer at the time the investigation was begun, Oct 28, 1931 When it was finally established that his product was the source of the cases investigated the state board of health served an order on him prohibiting the sale of raw milk or cream produced or stored in his dairy until the herd was proved to be free from contagious abortion Two other cases are included in the report but it was established that these originated outside the communities in which they were diagnosed

NEW YORK

Lake Keuka Medical Meeting.—The thirty third annual meeting of the Lake Keuka Medical and Surgical Association was held at Lake Keuka Hotel, July 14-15 The program included the following speakers Drs Frederick S Wetherell, Syracuse, "Spinal Anesthesia in Surgery', Max M Peet, Ann Arbor, 'Head Injuries" Foster Kennedy, New York, "Neuroses Following Accidents', George B Magrath, Boston, "Medical Science in the Service of the State with Special Reference to Investigation of Deaths', Howard M Clute, Boston "Diagnosis and Management of Obstructive Jaundice , Descum C McKenney, Buffalo, 'Blood in Stools of Colonic Origin", William L Wallace, Syracuse, "Avertin in Surgery" Dr Harold O Jones, Chicago, showed a sound film on 'Repair of Second and Third Degree Lacerations of the Perineum and Rectocele" Dr. Frederick H Flaherty, Syracuse, president-elect of the New York State Medical Society, made the opening address on medical organization

New York City

Hospital Allowance for Care of Indigents—The United Hospital Fund, representing fifty-six private hospitals in New York, has appealed to the Board of Estimate and Apportionment to increase the allowance for care of patients recognized as public charges from $3 to $4 50 It was pointed out that the amount allowed was about half the cost of their treatment and also that the number of such patients had doubled in the last five years The statement declared that the hospitals would not be able to meet what promises to be a greater demand than ever during the coming winter unless early and substantial help came from the city In 1931, it was said, forty-three general and special hospitals and branches gave 788,062 days of hospital care to indigent patients in addition to their service to free and part-free patients for whom the city paid nothing

Outbreak of Wood Alcohol Poisoning.—Eighteen men died of wood alcohol poisoning in the lower East Side district between July 27 and 31, according to newspaper reports Seven were found dead in parks or on the streets and the remainder died within an hour after being taken to Bellevue and Broad Street hospitals from various places from the Bowery to the Battery Alexander O Gettler, Ph D, city toxicologist, and Dr Harry Schwartz, assistant medical examiner, made the chemical analysis that determined the cause of death First-hand information as to the source of the poison liquor could not be obtained, as all the victims who were still alive when found were unconscious, but Dr Charles Norris, chief medical examiner, expressed the belief that it had all come from a common source It was said that the last outbreak of the kind occurred in 1930, when thirty died during the month of June.

NORTH CAROLINA

Hospital News.—A new hospital, known as the Lyday Memorial Hospital, was opened, June 6, in Brevard——The new $130,000 unit of the Randolph Hospital, Asheboro, was recently opened, it is reported The cost was financed in part by the Duke Endowment

Society News—Dr William A Frontz, Baltimore, recently addressed the Guilford County Medical Society on "Malignant Disease of the Prostate and Bladder' Dr Frontz addressed the Buncombe County Medical Society, June 20 on hematuria, with special reference to early diagnosis——Drs James W Gibbon and Oscar L Miller addressed the Mecklenburg County Medical Society, Charlotte, June 7, on "Surgery of the Large Intestine and 'Treatment of Tuberculous Hips in Children by Surgical Fusion respectively——Drs Richard B Davis and Charles A Julian both of Greensboro, were speakers before the Robeson County Medical Society, June 18 on 'The Logical Incision for an Appendectomy" and "Nervous Indigestion, respectively

PENNSYLVANIA

Society News—The Fayette County Medical Society held a clinical meeting, August 4 at Uniontown, with Drs Alexander M Duff, Jr, Republic, and William A McHugh, Jr, Uniontown among others, as speakers, on "Public Health Aspects of Rabies and Neurofibromatosis of the Peritoneum," respectively——Dr Jonathan M Wainwright, Scranton, was elected president of the Lehigh Valley Medical Association at the fifty-second annual session at Pocono Manor, July 21. Speakers at the meeting were Drs William J Schatz, Allentown, on "Evolution of the Present-Day Saline Solution"; Samuel B English Glen Gardner, N J, 'Fifty Years' Progress in Medicine," and Edward J G Beardsley, Philadelphia, 'Role of Physical Examination in Diagnosis"

Philadelphia

Diphtheria Campaign—Temporary clinics established for intensive immunization in the city's fifth annual campaign against diphtheria, June 6-24, treated 9,851 children Each child that received three injections was furnished with a certificate stating the approximate date of the injections, and advising the parent to bring the child back at the end of six months to determine the effect of immunization If the child is then found immune, he will be given a certificate stating this fact The campaign was carried on in sixty-six public schools, eighteen parochial schools and ten health centers

SOUTH DAKOTA

Society News. — Dr. Solon Marx White, Minneapolis, addressed the Sioux Falls District Medical Society, June 14, on heart disease in pregnancy.——Dr. Daniel S. Baughman addressed the Third District Medical Society at Madison, June 3, on "Tumors of the Testicle."——A $375,000 sanatorium for Indians with tuberculosis will be started at once at Fort Pierre, it is reported.

TEXAS

University News.—Dr. John O. McReynolds, Dallas, has presented to the University of Texas School of Medicine a scientific exhibit relating to the crystalline lens system in man and the lower animals. The collection assembled by Dr. McReynolds consists of photographs and mounted lenses of the various species of the animal kingdom, and 300 cataract lenses removed in the capsule, together with slides illustrating the pathologic processes and the embryology of lenses.

Society News. — Dr. Henry F. Carman, Dallas, among others, addressed the Tarrant County Medical Society, Fort Worth, June 7, on artificial pneumothorax.——Physicians of Jim Wells, Brooks and Duval counties organized a tricounty medical society, June 7, with Dr. John S. Strickland, Alice, as president and Dr. George G. Wyche, Alice, secretary.——Among speakers at the semiannual meeting of the North Texas District Medical Society at Bonham, June 14-15, were Drs. Alfred I. Folsom, Dallas, on "Prostatic Resection"; Lois Weir Smith, Sherman, "Fermentation Diarrhea in Infancy"; Everett C. Fox, Dallas, "Precancerous Dermatoses," and Daniel B. Westerman, Cooper, "Peptic Ulcer of Stomach and Duodenum."——Dr. Charles P. Coogle of the U. S. Public Health Service, Longview, among others, addressed the Van Zandt County Medical Society, June 3, on malaria control.——A program of lectures on cancer was presented at Sherman, June 7, under the auspices of the Grayson County Medical Society, by Drs. Arthur C. Scott of Temple and John L. Goforth and Curtice Rosser, both of Dallas.

GENERAL

News of Epidemics.—Quarantine was suddenly imposed on a national guard encampment at Camp Perry, Ohio, July 10, when thirty cases of chickenpox were discovered among the 2,700 officers and enlisted men in training there.——Fourteen cases of scarlet fever in a residential section of Elizabeth, N. J., between June 13 and 18, were traced to the use of raw milk from a single dealer. Infection was believed to have come from two cases of the disease in the dealer's family. It was said that the dealer involved had been a strenuous objector to a proposed ordinance requiring pasteurization of milk; he had, however, arranged to pasteurize his supply after the outbreak of scarlet fever.——General vaccination against smallpox was ordered by the mayor of Niles Center, Ill., July 20, after several cases were discovered in the village.

Society News.—All the officers were reelected at the seventeenth annual convention of the Catholic Hospital Association of the United States and Canada held, June 21-24, at Villanova College, Villanova, Pa. The program included the following speakers: Dr. Edward H. Cary, Dallas, President, American Medical Association, in "Federal and State Hospital Legislation"; E. H. Lewinski-Corwin, Ph.D., New York, "Nomenclature of Diseases and Operations"; James B. Hagerty, D.D.S., "Dental Service in the Hospital in Relation to Medical Care"; Dr. Michael O. Cunningham, Deming, N. M., "Requirements for the Care of the Tuberculous Patient"; Mr. Homer F. Sanger, Chicago, "National Hospital Development," and Dr. James P. Dean, Madison, Wis., "Essential Factors of a Diagnostic Service." The meeting was conducted with the Rev. Alphonse M. Schwitalla, St. Louis, presiding.——The fourth annual meeting of the Aero Medical Association will be held in Cleveland, September 3-5, under the presidency of Dr. Ralph N. Greene, Jacksonville, Fla. The association is made up of medical examiners of the aeronautics branch of the U. S. Department of Commerce, and army and navy flight surgeons. Dr. William B. Smith, Hartford, Conn., is the secretary. Among speakers will be Major Eugene J. G. Reinartz, Medical Corps, U. S. Army, on "Neuropsychiatric Problems of a Flight Surgeon," and Herbert B. Wright, Cleveland, "Medical Supervision."

Traffic Deaths Rise to 30,000.—An increase was noted in the mortality from automobile accidents in 1931, as compared with the total for the year 1930. The U. S. Department of Commerce, in its provisional summary for 1931, announces that during the calendar year in the death registration area of continental United States, exclusive of Utah, there were 29,547 deaths from these accidents, not including collisions of automobiles with railroad trains and street cars. In 1930, in the same area, there were 28,950 deaths from this cause. The death rates were 24.9 and 24.5 for the respective years. In these two years, forty-seven states, the District of Columbia, and eight registration cities in the nonregistration state of Texas composed the area in continental United States, or 95.7 per cent of the total population. Considering the states by geographic divisions, the Pacific group had the highest death rate (34.6 per hundred thousand of population) in both years. Nevada, with a rate of 68.5, had the highest rate for states when considered separately. The rate for Nevada almost doubled, the rate in 1930 being 37.4. Mississippi had the lowest mortality rate (14). The city having the highest mortality rate from this cause was Camden (84). The total number of deaths within a city should not be taken as the measure of the automobile hazard, the department of commerce points out. The location of the city with reference to automobile traffic, the volume of traffic, hospital facilities and other factors should be considered. Camden is offered as an illustration of this statement. In 1931, 100 deaths attributed to automobiles occurred in Camden, but only 37 were due to accidents within the city limits. The remainder (63) were due to accidents outside.

Government Services

Course for Reserve Officers

A two weeks' course of medicomilitary training for Medical Department Reserve Officers has been arranged through the authorities of Western Reserve University and the hospitals of Cleveland, to be given, October 9-22. Mornings will be spent in hospitals and the Cleveland Clinic, which are collaborating with the school of medicine and the Pathological Institute of Western Reserve. Afternoon and evening hours will be devoted to medicomilitary subjects. Applications are being received by Dr. George W. Crile, commander of the Cleveland Inactive Duty Training Unit, Ninety-Third and Euclid Avenue, Cleveland. They will be forwarded to the corps area surgeon of the Fifth Corps Area. Those from officers outside the Fifth Corps Area should be forwarded through their respective corps area commanders. The course offered at Cleveland is the first to be given outside the Seventh Corps Area. Previous periods of study have been conducted at the Mayo Foundation, Rochester, Minn., and at Washington University, St. Louis.

Examination to Fill Vacancies in Army Medical Corps

An examination for appointment as first lieutenant in the medical corps of the regular army will be held, September 12-16. Examining boards, if necessary, will be convened at the following places, and applicants will be ordered to appear before the board most accessible to their homes: Boston; New York; Washington, D. C.; Fort Monroe, Virginia; Fort Bragg, North Carolina; Atlanta, Ga.; Fort Benning, Georgia; Columbus, Ohio; Carlisle, Pa.; Indianapolis; Chicago; St. Louis; Hot Springs National Park, Ark.; San Antonio, Texas; Fort Sill, Oklahoma; Fort Leavenworth and Fort Riley, Kansas; Fort Omaha, Nebraska; Fort Snelling, Minnesota; Denver; Cheyenne, Wyo.; El Paso, Texas; Los Angeles and San Francisco; Fort Lewis and Vancouver Barracks, Washington. Successful candidates will be ordered to an army general hospital or a large station hospital as first lieutenant of the medical reserve corps on active duty for a period not to exceed one year. After a period of observation, those applicants demonstrating necessary qualifications will be commissioned in the medical corps of the regular army to fill existing vacancies. To be eligible for appointment, the applicant must be a male citizen of the United States between the ages of 23 and 32 years, a graduate of an acceptable medical school, and must have had at least one year's hospital training subsequent to the completion of a four years' course of instruction in such medical school or its equivalent in practical professional experience as determined by the surgeon general in each case. The examination will consist of a physical examination; examination as to moral character and general fitness, and professional examination, the last to cover anatomy, surgery, practice of medicine, physiology and pathology, materia medica and therapeutics, and obstetrics and gynecology. Further information may be obtained from the adjutant general or the surgeon general of the army, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 16, 1932.

The Museum of the Royal College of Surgeons

The annual report of the conservator of the museum of the Royal College of Surgeons illustrates anew the dominance of John Hunter in British surgery and the fitness of Sir Arthur Keith for maintaining the hunterian tradition. The museum is the greatest pathologic collection in the world, but it is much more than that. The subject of John Hunter's inquiry was not merely disease but life itself, and it was to elucidate its mechanisms that he made experiments and amassed his collection of specimens, of which the museum is but an expansion. Sir Arthur Keith is the sixth to occupy the position of conservator. Under all its conservators the museum has continued to grow with the advance of knowledge, but one feature has remained constant: the museum today is arranged in the same divisions as in Hunter's time. But each conservator showed his predilections in his report. If Hunter had to draft one he would have emphasized his wonderful series of preparations which illustrate the anatomy of function, demonstrating the manner in which circulation, respiration, digestion, locomotion and reproduction, are effected in all forms of life. His "physiologic series," as it is still called, constituted the major part of Hunter's museum, and it still forms the dominant exhibit. Under Clift and Owen the physiologic department still received first place in the reports, but it was form rather than function that held their interest. They were morphologists rather than physiologists. Quekett worked in the generation that first applied the compound microscope to the elucidation of animal structure and function. With Flower came the darwinian period, anatomy was exploited, not to throw light on function, as was Hunter's aim, but to unravel degrees of relationship and lines of descent. Under Stewart, Hunter's physiologic series again became the center of attention, and now under the present conservator, whose report is the twenty-fourth drafted by him, darwinian influences are again in the ascendent.

Hunter created his museum to serve as a great engine of biologic research, because he believed that an understanding of disease and the discovery of rational means of treatment must be based on an accurate knowledge of the processes manifested by living matter. "At first sight it does look," says Keith, "as if our museum had lost its way and was being carried in a direction which Hunter never intended. If, however, those who read the reports will look not at their outward appearance but at their inward significance, they will see that, particularly in recent years, there are signs of a return to the hunterian point of view." Thus the additions of Mr R H Burne, F R S, physiologic curator, throw light on the basal processes of vertebrate physiology—the origin of the lymphatic system, the anatomy of the gland of internal secretion, and varying arrangements of the nerves of the sympathetic system. The addition reported by the pathologic curator, Mr Beadles, show an even greater representation of preparations that illustrate the nature of growth disorders of the human and the animal body. Even in the anthropologic section of the museum, which is mainly the creation of Keith, the main search is not to trace the history of extinct and of living races but to discover the physiologic process that has given each race its distinctive anatomic characters.

At various times there has arisen in the council of the college the feeling that, notwithstanding the contribution the museum was making to surgical pathology, it was not doing all it might for the advance of surgery. Under the advocacy of Sir Jonathan Hutchinson, laboratories were built over the workrooms on the museum for the purpose of experiments, but the attempt failed because experiments on living animals were excluded. Now under Lord Moynihan the council has returned to the desirability of bringing the museum more into the service of surgery. Sir Charles Ballance has continued his experiments on nerve suture and nerve grafting, which aim at discovering more efficient methods for restoring movement and sensation to paralyzed parts. By suture of the distal end of the divided hypoglossal nerve to the sympathetic cord in the neck he has shown that voluntary movement impulses can reach muscles over the sympathetic system. Mr. L. F. O'Shaugnessy, who has worked under Sauerbruch in Berlin, is investigating problems of thoracic surgery. Mr. H. P. Winsbury White is using the museum laboratories for an experimental investigation of the manner in which infection spreads from the urethra and bladder to the kidneys; Mr. E Mortimer Woolf is studying the production of diverticula from the intestinal wall.

The Sterilization of Mental Defectives

The Central Association for Mental Welfare has expressed satisfaction in the *Times* at the recent report of the British Medical Association on the sterilization of mental defectives. In common with all organizations that have given consideration to the problem, the association regards it as axiomatic that no mentally defective person, as defined by the mental deficiency acts, should have children. Today the economic strain tempts many, including some local authorities, to think that by a general measure of sterilization the high cost of segregation in institutions might be avoided. But sterilization is not so simple a solution of the difficulty as it appears. It is necessary to know how far institutional care would still remain essential, however widely sterilization might be adopted; and, conversely, to know what types of defectives, when sterilized, could still be allowed to live safely under supervision in the community. The experience of the association, which includes knowledge gained in visiting the homes of defectives all over the country for twenty years, is that there is a percentage of defectives who can be, and many of whom are, usefully employed in the community. But in some of these cases the danger of propagation is great, and for such the association holds sterilization to be desirable. It should therefore be legalized, provided adequate safeguards can be devised against abuse. But the association cautions against expecting too much from this remedy. While there is general agreement that mental deficiency is largely the result of morbid inheritance, all the available evidence indicates that the proportion born of a parent who is actually defective is small. In the majority of cases the defect is not transmitted directly, but indirectly through "carriers."

The Changing Population of London

The 1931 census shows that the decline in the population of the central or administrative part of London continues while that of the outer districts, which make up "Greater London," increases. In the former the population in 1931 was 4,397,003, a decrease on that of 1921 of 87,520. In Greater London, which is roughly included in a circle of 15 miles radius from Charing Cross, the population was 8,203,942, an increase of 723,741 in the same period and thrice as great as the increase of the previous decade. In 1801 the population of administrative London was less than 1,000,000. Then the number rose to 4,536,267 a century later, since which time there has been a progressive decline. A noteworthy fact is that the average size of families has been reduced by 8.7 per cent, from 3.79 persons in 1921 to 3.46 in 1931. This decline of population is as great as in the preceding decade, when the population was exceptionally depleted by men killed in the war. It is a manifestation of the general decline of the birth rate throughout the country. A satisfactory feature is that there is less overcrowding. Overcrowding is estimated by the number of private families with a density of more than two persons to a room. The percentage of such families has fallen from 16.1 in 1921 to 9.6 in 1931.

Females are in excess of males in the proportion of 1,151 to 1,000, a proportion which is only a little less than that of 1921 (1,165 to 1,000) just after the war, in which so many males were killed, and greater than the prewar proportion of 1911 (1,127 to 1,000).

Dangerous Drugs

So many complaints have been received recently by the police with regard to the relative ease with which dangerous drugs are obtainable in London that detectives with special knowledge of the methods of drug smugglers have been detailed to make an investigation. It is alleged that cocaine and diacetylmorphine are being sold at certain night clubs and dance halls, and that a profitable trade is derived from supplying noxious drugs for small parties arranged by persons carrying on the traffic. When drug peddling became a serious menace in London, some years ago, drastic legislation was introduced, which provided that persons who even offered or agreed to procure dangerous drugs rendered themselves liable to penal servitude, and after a number of notorious traffickers were convicted the evil was stamped out. Lately there has been a revival of the trade, shown by the number of known addicts who, according to police information, are obtaining supplies from unauthorized sources. Immigration and customs officers at the sea and air ports have been asked to watch for signs of the traffic. The ordinary channels used by drug traffickers are not difficult to deal with, but state economies have resulted in such a shrinkage of preventive personnel that the detection of illicit traffic from the continent is a serious problem. Apart from regular landing places there are miles of unprotected coast on which motor boats might discharge illicit drugs worth a small fortune to persons prepared to take the risk of detection.

PARIS

(From Our Regular Correspondent)

July 6, 1932.

The Treatment of Alimentary Allergy

Mr. Charles Richet, Jr., and Mr. Couder have communicated to the academy a method to combat alimentary anaphylaxis. If the method is confirmed by others, it will render great service in these conditions, for the control of which therapeutics has at present only complicated procedures, such as the peptone therapy of Pagniez and of Vallery-Radot and the elimination method of Albert Rowe. Richet uses an entirely different principle, which he has described in an article in the *Presse médicale*. He says that it is difficult to produce an anaphylactic state by way of the digestive tract. It can be accomplished only by cleansing previously the intestinal mucosa, as Besredka has advised, by an abundant supply of bile immediately before the ingestion of the food. Richet concluded from this that one could produce the opposite effect by previously protecting the mucosa with an insulating substance, and he used for that purpose liquid petrolatum or petrolatum in a pure state, without the addition of phenolphthalein, which one finds in nearly all preparations of liquid petrolatum sold today as a remedy for constipation. In his opinion, it is the too rapid ingestion of unchanged proteins that produces anaphylaxis, and that is why Pagniez observed anaphylaxis in fast eaters. The observations of Richet include cases of recurring urticaria, Quincke's edema, painful diarrhea, dizziness and migraine arising after the ingestion of certain foods, often over a long period of years and having resisted the ordinary methods of desensitization. The treatment consisted solely of having the patient ingest a dessert spoonful of liquid petrolatum at the beginning and in the middle of each meal. In each case, the allergic disorders disappeared the next day. But the method must be carried out rather perseveringly in order to effect a cure, for, in the beginning, if the treatment is interrupted, the disorders may reappear. But they cease if the treatment is resumed.

The Danger of Allowing Psychopaths Their Liberty

The increase in the number of murders committed by the insane and by half-wits is beginning to arouse the public authorities, as well as the alienists. At the recent Congress of Legal Medicine, the chief of police of Paris deplored the fact that he was not better equipped in the legal sense and from the financial point of view. He is provided with only two inspectors for the supervision of patients who have been dismissed from asylums. However, the law of 1838 allows the prefects to "adopt whatever measures are necessary" when any persons disurb the public order and the safety of citizens. They can therefore intern agitators, but they seldom do so unless laws are violated. Dr. Claude, professor of the clinical aspects of mental diseases at the Hôpital Ste. Anne, has brought the question before the tribune of the Academy of Medicine and is seeking the means of combating the increasing number of tragedies due to insanity, as a result of the considerable number of psychopaths who have been allowed their liberty too long or who have been released after a period spent in special institutions. In the present state of affairs, it would be well to work toward the creation of a more flexible and more suitable organization for the examination of suspicious cases. The authors suggested to the academy to study specific plans, such as the creation of a medicojudicial commission with authority to intervene in all cases reported by the physicians or by the police officers. Furthermore, a more extensive surveillance of patients given their liberty would afford greater security. Finally, it would be necessary to create throughout France departments of mental prophylaxis, of which there is at present only one functioning (the one at Paris).

Polyneuritis Due to Apiol

Mr. Henri Roger of Marseilles reported recently to the academy a case of polyneuritis resulting from the ingestion of apiol. This product is no longer regularly used in France, since better methods have been devised to treat amenorrhea. It is rarely used other than by pregnant women who desire to bring on an abortion, as this substance can be easily procured in the pharmacies. The desired effect is not generally produced, but they absorb considerable quantities, and it is not rare for accidents to occur. Trillat and Thiers of Lyons and Loederich and Brûle of Paris have observed grave lesions of the liver and of the kidney. Polyneuritis under these conditions has now been observed for the first time in France by Henri Roger. But Mr. Netter pointed out that cases had been reported, during the past year, from the Netherlands, Yugoslavia and Germany. Van Ittalia of Leyden has shown that the various preparations incriminated contained tricresylphosphate, which appears to be the cause of this polyneuritis. Mr. Netter recalled the observations of polyneuritis made in the United States in connection with adulterations of the fluidextract of ginger. He requested the academy to institute an inquiry as to the possibility of such adulteration in the products sold to the public, and, in case of confirmation, to prohibit further sale of the substance, as was done recently in the Netherlands and in Hamburg. Such a prohibition will be the more easily accomplished because the preparations of apiol were suppressed back in 1928. Mr. Netter is of the opinion, in view of the possibility of such accidents, that the matter should be brought to the attention of surgeons, who, following the example of Doppler of Vienna, are using in France applications of tricresyl to the surface of the arteries of the testis or ovaries in order to effect a chemical sympathicectomy.

Immunization by Inhalation

Mr. Trillat, professor at the Institut Pasteur, who has devoted himself for many years to the study of miasmas and the propagation of infectious diseases by means of micro-organisms suspended in the air, has succeeded in demonstrating the correctness of his theories by bringing about the inverse operation;

namely immunization. He made use of the infective agent of chicken cholera, after having shown that the contagion took place in the atmosphere of the poultry houses. He sprayed into this atmosphere dilutions of cultures, attenuated microorganisms and vaccines, and brought about thus the rapid disappearance of epidemics in the infected poultry houses. Dr. Roux presented the work of Dr. Trillat to the Academy of Sciences and called attention to the great interest that attaches to the research for the arrest of epidemics in inhabited places in the case of influenza, pneumonia and the like.

BERLIN

(From Our Regular Correspondent)

July 11, 1932

The Antivivisectionists

The antivivisectionists in Germany do not play as big a part as in some other countries. Nevertheless it becomes at times necessary to take action against them. At a recent session of the Breslauer Medizinische Gesellschaft, Rosenfeld, with the approval of others, stated that, next to charlatanism, the antivivisectionists constitute a danger to the authority of the physicians since they make the charge that such experiments are wholly useless and serve only to satisfy sadistic desires. In refuting these wild assertions, the great accomplishments of the past fifty years must be recounted and attention called to the humane methods employed in vivisection. The eradication of great epidemics and the advances of serotherapy and chemotherapy and in the diagnosis of disease have been initiated and extended by means of animal experimentation, which applies also to numerous surgical operations. Even the animals would protest against the antivivisectionists, for they have derived the greatest advantages from vivisection. Through animal experiments the protective serums against anthrax, swine erysipelas, hog cholera, foot and mouth disease, and the like, have been developed. Furthermore, human contacts with animals have been endangered by certain diseases. Psittacosis may attack the whole family, Bang's disease may affect the caretakers of stock, and undulant fever the keepers of goats. The crass ignorance of biologic and medical matters, even in educated circles, can be combated only by constantly calling attention to the great scientific achievements. Of course, animal experiments must be carried out as conservatively as possible, for which there are in Germany legal provisions, the details of which were recently discussed in these letters.

A Geographic Study of Goiter

Privatdozent Dr. Hans Joachim Arndt of Marburg reported recently on the results of a research that he had carried out in a large series of goiter cases during his eighteen months' stay in Russia. The researches are the outgrowth of a request made by the Notgemeinschaft der Deutschen Wissenschaft to Professor Aschoff of Freiburg that he institute researches in geographic pathology and establish for that purpose a suitable working center in Russia. Goiter was chosen as the classic problem of geographicopathologic research. The research conditions were highly favorable as all the regions could be visited by the investigators and the patients could be selected and examined personally. The examinations were concerned chiefly with the field of pathology and anatomy. In the various regions of Russia the average weight of the thyroid gland in the different age groups was established and thus the "life curves" of the thyroid gland were obtained, which constitute an important criterion for the diagnosis of goiter. The average weight of the thyroid gland in the regions in which goiter is prevalent is more than three times as much as in regions in which the disease is rare. It proved possible to set up a scale from region to region with the aid of which it was possible to show that goiter depended to a certain extent on age and sex. Microscopic researches made it possible to distinguish three groups, as previous researches of the Bern and Freiburg schools had shown. The first group includes the simple enlargements of the thyroid gland, in which the structure corresponds fully to the normal thyroid gland and only a quantitative increase of the functioning tissue is observed. The second group shows a nodular enlargement, which appears to develop from cell complexes that are normally present in the thyroid gland. They present all the signs of a genuine tumor and are apparently identical with the adenoma of the thyroid gland. In the third group, in addition to an increase of the functional tissue, there are distinct changes in the tissue that correspond to the conditions that are usually observed in exophthalmic goiter. The third group claims today the chief interest of investigators, as it may develop secondarily from the first two groups. From these researches it becomes again apparent that there is no uniform anatomic basis for goiter; that, on the other hand, local factors appear to play a part and furnish the basis for the various types of goiter. Now, as in the past, the goiter problem centers in the study of the local conditions that cause the enlargement of the thyroid gland. Endogenous, constitutional factors found in the patients themselves play a secondary part, as was shown also by the researches in Russia. Nevertheless, in addition to the often discussed lack of iodine, the intensity of the solar irradiation appears to be of importance, among other things. Endemic goiter (that is to say, a simple increase of the normal thyroid gland tissue) is determined by geographic and climatologic conditions and constitutes merely a compensatory reactionary process; it is necessary in the interests of orderly body functioning and does not appear to be pathologic.

Meeting of Ophthalmologic Society

At the opening session of the Deutsche ophthalmologische Gesellschaft, Tschermak-Seysenegg of Prague spoke on Goethe's work in physiologic optics. He exalted Goethe as one of the founders of subjective physiology of the senses. From the numerous papers the following items have been abstracted: Baurmann of Gottingen found in research on the structure of the vitreous body—in contrast with the descriptions of other authors—a well developed and genuine canal extending through the vitreous body. The conception that such a canal is only simulated by a central vitreous body area of especially loose structure was rejected.

New methods for the treatment of detachment of the retina were presented by Lindner of Vienna. He described his experience in fourteen cases, with his so-called undermining method, which he regards as less violent than fixation by means of successive cauterizations (Guist). The danger of intra-ocular blurring through exudation or hemorrhage is much less. The method has, however, the disadvantage that the retina thus fastened is functionally abolished. Weve of Utrecht has worked out a diathermic procedure for the treatment of retinal detachment. The principle is based on the closure of the lesions of the retina by means of multiple microdiathermopunctures. The current tension is reduced to a few milliamperes by leaving out the inactive electrode (unipolar method). For the control of localization of the lesion, such a micropuncture is allowed to precede further punctures, and the result is judged with the aid of the ophthalmoscope. The use of the ophthalmoscope is greatly simplified by the attachment of a small corneal contact device introduced by Zeiss, whereby the drying and blurring of the cornea is prevented during the operation. This device may be useful also for the determination of the meridian after the error due to astigmatism is thereby overcome. The exact localization in connection with an extremely conservative perforating microcoagulation technic by repeated use of the ophthalmoscope effects the rapid relief of the detachment with a maximal preservation of function and a minimal danger of complications. The technic is simple. The indications are more extensive than in the Gonin technic, as even the widest lesions can be smoothly healed at one sitting.

BUENOS AIRES

(From Our Regular Correspondent)

June 15, 1932.

Cyanosis Caused by Alveolar Hypoventilation

Dr. B. A. Houssay recently delivered a lecture before the Academia Nacional de Medicina of Buenos Aires on insufficient oxygenation of the arterial blood in patients with Ayerza's disease. Ayerza described, using the term "black cardiac patients," a certain type of patients with chronic bronchial or emphysematous disturbances, who present a clinical picture of cyanosis associated with an increase in the red blood cells, somnolence and other symptoms. Because of the cyanosis, the patients seem to be suffering from cardiac decompensation although they really are not. Later the cardiac insufficiency appears and the cyanosis increases. The speaker and his assistant Dr. I. Berconsky have observed several cases of Ayerza's disease at the Instituto de Fisiología of Buenos Aires. In all cases arterial cyanosis was present. The hemoglobin of the blood had an oxygen saturation of from 75 to 85 per cent of its volume instead of 95 per cent, which is normal. The imperfect saturation of the hemoglobin with oxygen was caused by the low pressure of oxygen (from 53 to 78 mm. instead of 100 mm.), as well as by the high pressure of carbon dioxide. Cyanosis was caused by the diminution of alveolar ventilation since the inspired air measured only from 250 to 300 cc., instead of 400 to 500 cc. Cyanosis caused by insufficient oxygenation of the arterial blood may be either acute or chronic. The acute form is observed in the superficial and rapid respiration; the chronic form is observed in several emphysematous or sclerous diseases, such as pneumonoconiosis, bronchogenic or pleurogenic disturbances, sclerosis complicated by pulmonary arteritis, and some other similar conditions. The disease of the Andes or erythremia from high altitude, described by Monje, probably is a form of alveolar hypoventilation. One should consider that alveolar hypoventilation exists whenever the pressure of oxygen of the alveolar air is lower than the barometric pressure of the locality in which the patient lives.

Undulant Fever

The national committee appointed in September, 1931, to study undulant fever in Argentina has presented a report. The first positive results of the seroreaction in man was observed in Córdoba by Dessy and Lorenzelli in 1922. The first case in which a positive diagnosis was made occurred in Mendoza in 1931. The first focus in goats was discovered by Sordelli and his collaborators. During the year 1931, 136 cases were observed in man, with six deaths, or 4.4 per cent. The clinical diagnosis was correctly made during an early period of the disease only in eight cases out of sixty-one cases of undulant fever which were observed in the several provinces, probably owing to the fact that the disease was unknown in the country. Several foci of undulant fever were discovered in twelve provinces and territories, the total number of which amounted to 230 foci during the year 1931.

Regulating the Universities

Several bills have been presented before congress in an attempt to bring about order in the several universities of Argentina. The bill proposed by members of the national executive powers has the following considerations: Since the universities should be considered as centers of investigation and teaching, it seems advisable to grant 10 per cent of the total amount collected from the revenue tax to support the expenses of schools and universitary centers. Free teaching in colleges seems advisable, while the limitation of the number of attendants to the schools does not. Teaching should be given by full time professors, who should obtain better salaries than those given to professors who are not full time teachers. The universities should be granted complete autonomy. The administration board in each faculty will consist of a group formed by a council of seven regular professors, four substitute teachers and four students. Several other bills have been offered for consideration. Some bills which have been presented before the government are inspired either in an open demagogic spirit or in absolute ignorance of matters related to a university.

Journals of the Asociación Médica Argentina

The Asociación Médica Argentina will merge three of the journals which heretofore have been published separately under the names of *Revista de la Asociación médica argentina*, *Revista de medicina interna y de tisiología* and *Revista de especialidades* into one which will be named *Revista de la Asociación médica argentina*. This journal will be published monthly and will contain the articles presented before the confederated medical societies of internal medicine, phthisiology, ophthalmology, otorhinolaryngology, psychiatry and neurology, pharmacology and therapeutics, toxicology and legal medicine, hygiene, and some other medical societies of Buenos Aires. The articles presented before the Sociedad Argentina de Biología and its branches will continue to appear, as they have appeared heretofore, in the journal *Revista de la Sociedad argentina de biología*.

TURKEY

(From Our Regular Correspondent)

Ankara, June 25, 1932.

Early Obstetrics in Turkey

Prof. Besim Omer Pasha, head of the department of obstetrics at the medical school, where he has been teaching now for forty-seven years, has recently added to his many publications a small book on the history of obstetrics in Turkey. It has been written for laymen and midwives. Among the fifty illustrations are those of some early western and eastern methods in obstetrics; in connection with the early practice of obstetrics in Turkey, three are especially picturesque: One is the preparation of the floor bed with a charcoal brazier at the side in a room with latticed window, under which there is the customary low settee. The second shows the old midwife taken from her home at night to attend a birth, mounted on a donkey and accompanied by the husband of the woman to be confined, who is carrying the lantern, and by the night watchman, who is carrying the specially constructed chair on which the parturient is to be placed. The third shows a case of asphyxia neonatorum with the midwife placing the dead child on a small table; the placenta, with which the child is still connected, is placed on a grill over a charcoal brazier, and the midwife is trying to bring life back by blowing air into the placenta with a pair of bellows.

An interesting account is given from the pages of Evliya Tchelebi, an ecclesiastic of high rank, of Esmahan Kaya Sultan, a daughter of Sultan Murad IV (1623-1640), who died during childbirth at the palace on the Golden Horn. Of this event we read that "forty persons had been reading the Koran from beginning to end, 40,000 prayers had been said during the night, a generous amount of money had been distributed among the poor, and 500 women and children who had spent the night at the gates of the palace waiting for news had been provided with new clothing. Great was the joy of the people when the birth of a daughter was announced: but when it was learned that because of an oversupply of adipose tissue the placenta was sticking to the heart of the lady sultan, their rejoicing turned into infinite sorrow. That the placenta might be delivered, the lady sultan was put into a kelim and swung right and left; she was twice hung up with her head down and then was put into a honey barrel filled to the brim with orange blossom water; when after three days the placenta was still not forthcoming, one of the midwives oiled her hand and arm with almond oil and inserted her hand and arm up to the elbow into the pelvis; after a few moments she produced a piece of tissue, saying 'at last the placenta.' A second midwife said 'there should be more of it.' Then she introduced her hand and brought out additional pieces of tissue. Undergoing such torture, the mighty Sultan's beloved daughter closed her eyes for ever the next day."

Then the author gives a short description of superstitious practices in connection with complicated births among primitive peoples, and of obstetric practices in Turkey before the days of trained midwives. At that time when the only preparation a midwife had was an apprenticeship, the contents of her bag were a bottle of olive oil, a jar of petrolatum, a scalpel, a pair of scissors and the root of an herb known as the "hand of mother Mary." The root was cleared of the soil by just putting it into a bowl of water for a while previous to introducing it into the cervix. Birth facilitating qualities were ascribed to the use of holy water, the wearing of a belt with Koran inscriptions, the keeping of a candle, a sword or a turban from the mausoleums of the great in the confinement room, and the drinking of water from the palms of the husband's hands. If she attended a primipara, the midwife would bring a specially constructed chair, much like the high chairs now in use for children, from which immediately after the birth of the child the woman was carried to the floor bed, which procedure often must have been the cause of severe hemorrhage.

The author's comment on the history of medical education throws an interesting sidelight on the development of obstetrics. He refers to an address which he delivered on the occasion of "medical day," when he said: "Looking west, we find that classical medical education was instituted only one century ago; looking east, we find that the teaching of medicine can be traced back at least six centuries. Why not regard as our first teaching center the school and hospitals established in Kayseri by the Seljuks instead of the school established under Sultan Bayezid 200 years later in Brussa.

Obstetrics did not occupy a special place in the curriculum of early Turkish institutions; only in the books on surgery are found chapters on medicaments to be used, and measures to be taken in complicated births, from which may be inferred that the obstetrics was being taught together with surgery. In the illustrated surgical handbook written in 1465 by Sherefeddin Ali are discussions and illustrations of retractors and other instruments some of which were much like those used by Ebulkasim.

At the imperial medical school founded by Sultan Mahmoud II in 1826 in Istanbul there was a more progressive curriculum. At this period religious fanaticism did not permit the dissecting of human bodies and anatomy still had to be studied from manikins. In 1836 the medical and surgical departments were merged, and Professor Bernard of the Vienna medical school became the director. The school was reorganized along European lines, and henceforth the students had the opportunity to observe Professor Bernard perform necropsies at the Austrian hospital. In 1843 the first courses for midwives were organized and in 1845 the first certificates were issued. The first special course in obstetrics for physicians was organized in 1852 and soon the translation of obstetric textbooks from French into Turkish began. Then about 1880 a number of honor students were sent to France for postgraduate work along special lines. In one of these groups was Dr. Besim Omer, who specialized in obstetrics and pediatrics under Professor Budin of Paris and on his return in 1885 was appointed lecturer on obstetrics at the medical school in Istanbul. At first, Sultan Abdul-Hamid II (1875-1908) favored the professors in the medical school but later, anticipating a possible political influence, saw to it that the number of physicians allowed to engage in postgraduate work in France or Germany was restricted. But by the time of the adoption of the constitution in 1908 a great number of physicians had availed themselves of the opportunity to do postgraduate work abroad. While Besim Omer Pasha is an advocate of the French school and French methods, the late Dr. Asaf Dervish Pasha, professor of gynecology at the medical school and author of "diseases of women," advocated German methods. Both may be regarded pioneers of obstetrics in Turkey for to both belongs the honor of having paved the way for the establishment of scientific obstetrics. It was not easy to overcome the reluctance of Turkish women to seek the advice of physicians; fifty years ago it was still customary for women in childbirth to be attended exclusively by midwives. It required patience and tact on the part of those early obstetricians to overcome that reluctance at first in the homes of the wealthy and then gradually in the outpatient departments of the hospitals, where in the beginning many a young woman refused to lift her veil or give her proper age.

ITALY

(From Our Regular Correspondent)

June 15, 1932.

Convention of Sport Physicians

The first national convention of sport physicians was held in Rome. The chairman, Professor Baglioni, director of the physiologic institute of the University of Rome, in his opening address, discussed the duty of the modern physician in connection with sport activities. Sport physicians should supervise and direct all matters affecting the musculature, the brain and the psyche that come up in any form of sport activity and collaborate in raising the physical and moral standards of young persons who engage in sports. Improvement of the individual and of the race constitutes part of the purpose of preventive medicine, which has as its bases physiology and morphology. This convention of sport physicians planned to consider, as the central theme, the biologic evaluation of participation in sports from age 18 on. Only one topic was considered: "The Physical Evaluation of the Sport Devotee." Papers were presented by Professors Cassinis, Talenti and Bucciardi and Dr. Viziano.

Professor Cassinis dealt with anthropometric and morphologic evaluation of sport devotees. The purpose of the anthropometric evaluation is to show, on the one hand, the capacity to withstand the hardships of sport, and, on the other hand, the candidates' capacity to accomplish in the various sports. The anthropometric measurements, carried out by the Viola method, for the purpose of constitutional morphologic evaluation, and supplemented by the functional examination of the various organs, are designed to secure an exact method of reaching an opinion not only as to robustness but also as to the candidate's respective ability in sport. Dr. Viziano dealt with the evaluation of the cardiocirculatory apparatus, emphasizing that it is above all necessary to ascertain the reserve energy of the heart by observing the influence that participation in sports exerts on the circulatory function. Studying the size of the heart after a physical effort, the speaker noted that only when the fatigue overcame notably the reserve force of the organism was there acute dilatation of the myocardium. Since previous infectious diseases may have an influence, before the training of a subject is begun his personal history should be taken. With regard to arterial, venous and capillary pressure in relation to sports, the speaker urged that account be taken of the individual's occupation—a factor that is often overlooked—lest fatigue be added to fatigue. It is necessary to select carefully the teams in order not to force too much the reserve strength of any subject, while the energies of the others are not used sufficiently.

Dr. Talenti spoke on the evaluation of the respiratory apparatus. He discussed the oxygen requirements, the carrying of oxygen to the muscles and the behavior of pulmonary ventilation, which he recorded with a spirometer of his own manufacture. In conclusion, he affirmed that, in labor, greater importance attaches to an increase in the depth of breathing than to the frequency of the respiratory acts. Professor Bucciardi spoke on the evaluation of the neuromuscular apparatus, for which, the speaker emphasized, it is difficult to set up a rigid system. The criteria of evaluation must be based on multiple conditions and must take account of numerous factors. Bucciardi demonstrated the use of an ergograph that enables the examiner to record graphs when the arm is maintained in any position whatever. The official papers on the main topic having been completed, further communications on kindred topics were presented.

Professor Martinez spoke on the influence of sport on the constitution of the female genitalia, stating that from numerous observations that he had made in Bologna it appeared that rational abdominal gymnastics is useful for the development of the pelvis and of the female genital apparatus. "Athletics for Women" was the topic chosen by Madame Professor Zanetti and Professor Baglioni. The conception was brought out that sport activities, since born of the need for exercise, stimulate the regular development not only of the muscles but also of the heart, the respiratory apparatus and the kidneys.

It was decided to hold next year a second national convention at Bologna, or possibly to announce an international convention to be held at Rome.

Prophylaxis of Typhoid

The general manager of the public health service (ministry of the interior) has sent to the "provincial physicians" a circular letter concerning regulations pertaining to the hygiene of the soil and of dwellings and to the prophylaxis of typhoid. The sanitary authorities are urged to promote work directed toward the improvement of sanitary conditions of the soil in urban and rural communities and to prevent the improper disposal of waste waters from households and to inquire into the state of maintenance of the drains, cisterns and wells. The various systems of defense against flies are to be applied, especially in places where there are patients with infectious diseases. The vigilance with respect to food products and drinking water is to be intensified. In localities where typhoid is endemic, the causes that maintain the contagion will be sought out and measures will be taken to suppress them. A prompt diagnosis of suspected cases will be provided and search for carriers of Bacillus diphtheriae will be made among the members of the patients' families. Hospitalization of patients will be encouraged. Antityphoid vaccination will be extensively applied, especially in localities that are the seat of epidemics.

Marriages

William G. Stephenson to Miss Mamie Louise Barnes, both of Chattanooga, Tenn., June 15.

Randolph L. Anderson, Richmond, Va., to Miss Ruth Grove of Lewisburg, Pa., June 30.

George O. Thompson, Alliance, Ohio, to Miss Gwendoline Copeland of Cleveland, recently.

Morris S. Rosenblum to Miss Mathilda J. Meritzer, both of Youngstown, Ohio, recently.

Charles Powell Cake, Detroit, to Miss Janette Osborn of Lawrenceville, Va., May 28.

James R. Bloss to Miss Musette Hollobaugh, both of Huntington, W. Va., July 14.

Roland I. Grausman to Miss Elizabeth Strauss Block, both of New York, July 30.

Joseph J. Kronzer, Oshkosh, Wis., to Miss Lucille Wagner of Cleveland, May 23.

Gamber F. Tegtmeyer, Milwaukee, to Miss Margaret Louise Brown, June 18.

Will S. Nichols, Lake City, Fla., to Miss Eleanor Haile of Live Oak, June 28.

Edgar Andrew Rygh to Miss Ernestine Kolbus, both of Chicago, July 29.

Deaths

John S. Helms ⊕ Tampa, Fla.; Memphis (Tenn.) Hospital Medical College, 1891; member of the House of Delegates of the American Medical Association from 1918 to 1922 and again in 1927; past president of the Florida Medical Association and the Hillsborough County Medical Society; member of the Southern Surgical Association; member of the board of governors of the American College of Surgeons; surgeon in chief to the Tampa Children's Home; director of the division of surgery, Tampa Municipal Hospital; aged 61; died, July 24, of heart disease.

Charles George Lucas ⊕ Louisville, Ky.; University of Louisville School of Medicine, 1890; clinical professor of gastro-enterology at his alma mater; member, secretary and formerly president of the American Gastro-Enterological Association; fellow of the American College of Physicians; served during the World War; aged 63; on the staff of St. Joseph Infirmary, where he died, July 7, of heart disease.

Arkell Roger MacMichael, New York; College of Physicians and Surgeons, Buffalo, 1882; New York Homeopathic Medical College, 1883; formerly professor of clinical medicine and applied homeopathic therapeutics, New York Homeopathic Medical College and Flower Hospital; aged 76; died, June 29, in a hospital at Santa Barbara, Calif., of heart disease.

Frank Jay Van Kirk ⊕ Bellingham, Wash.; Hamline University Medical Department, Minneapolis, 1900; member of the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; aged 64; died, May 4, of coronary thrombosis.

William Edward Synan, Fall River, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1892; member of the Massachusetts Medical Society; aged 60; on the staff of the Union Hospital, where he died, June 14, of hypertension and arteriosclerotic heart disease, auricular fibrillation and chronic interstitial nephritis.

Victor A. Aimone, Washington, D. C.; Georgetown University School of Medicine, Washington, 1912; served during the World War; medical officer in charge of the U. S. Veterans' Administration Hospital; aged 45; was shot and killed, July 13, by a former patient.

Charles E. Lewis, Grove City, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1895; fellow of the American College of Surgeons; for thirty-six years medical missionary in China; aged 66; died, July 4, of biliary obstruction and septic cholangeitis.

Charles A. Van Dervoort ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1893; medical director of the Fidelity Mutual Life Insurance Company; aged 65; died, July 3, in the Bryn Mawr (Pa.) Hospital, of heart disease.

Willis F. Cobb, Lyle, Minn.; Chicago Medical College, 1874; member of the Minnesota State Medical Association; for six years mayor of Lyle; formerly president of the school board; aged 84; died, June 3, of cardiac decompensation.

John Ebenezer Pressley, Abbeville, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1908; aged 49; died, June 8, in the Emory University Hospital, Atlanta, of coronary occlusion, hypertension and arteriosclerosis.

James William Hempstid, Burrton, Kan.; American Medical College, St. Louis, 1885; member of the Kansas Medical Society; aged 71; died, May 28, at Hutchinson, of myocarditis and arteriosclerosis.

Ralph Sanders Stevens, Princeton, N. C.; University of North Carolina School of Medicine, 1905; member of the Medical Society of the State of North Carolina; aged 47; died, May 20, of heart disease.

William Leonard Jerman, Pasadena, Calif.; Eclectic Medical Institute, Cincinnati, 1873; Medical Department of Hamline University, Minneapolis, 1897; aged 81; died, May 20, of cardiorenal disease.

William I. Marsalis ⊕ Centreville, Miss.; Louisville (Ky.) Medical College, 1893; aged 58; died suddenly, May 28, of acute dilatation of the heart, coronary thrombosis and hypertension.

Harry Archibald Baker, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; aged 52; died, June 8, of coronary thrombosis and diabetes mellitus.

Frederick L. Deck, St. Louis; St. Louis College of Physicians and Surgeons, 1898; aged 68; died, June 10, in the Barnes Hospital, of intestinal obstruction due to strangulated hernia.

Patrick Cleveland Simmons, Arlington, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; aged 52; died, May 29, in a hospital at Dothan, Ala., of meningitis.

Joseph J. Greenblatt, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1908; aged 45; died, July 2, in the Jefferson Hospital, of erysipelas and uremia.

Robert E. Limerick, Corinth, Ky.; Medical College of Ohio, Cincinnati, 1884; member of the Kentucky State Medical Association; aged 73; died, May 28, in Cordova, of uremia.

Frank Willis Corson, Tidioute, Pa. (licensed, Pennsylvania, 1882); member of the Medical Society of the State of Pennsylvania; aged 71; died, May 16, of myocarditis.

William Harwell Hodson, Los Angeles; Bellevue Hospital Medical College, New York, 1882; aged 73; died, May 9, of thrombosis of the coronary and cerebral arteries.

Harvey Gill Baldwin, Seagoville, Texas (licensed, Texas, under the Act of 1907); aged 71; died, June 8, in Dallas, of cerebral hemorrhage and arteriosclerosis.

Benjamin Coe Irwin, Springdale, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1889; aged 68; died, June 15, of cardiorenal vascular disease.

Jasper E. Wagner, Paris, Ohio; Starling Medical College, Columbus, 1896; aged 64; died, May 30, of pulmonary edema, myocarditis and mitral stenosis.

Henry D. Rickenbach, Pittsburgh; Medical Department of the University of the City of New York, 1887; aged 72; died, June 2, of acute myocarditis.

Grant J. Pollard ⊕ Oriskany Falls, N. Y.; University of Vermont College of Medicine, Burlington, 1890; aged 66; died, May 15, of endocarditis.

George Robertson, Eolia, Mo. (licensed, Missouri, 1900); member of the Missouri State Medical Association; aged 67; died, June 13, of septicemia.

James Edward Orr, Detroit; McGill University Faculty of Medicine, Montreal, Que., 1886; aged 70; died, June 14, of carcinoma of the sigmoid.

Amzie B. Jenkins, Waxahachie, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1876; aged 78; died in June, of senility.

William Roberts, Denver; Denver and Gross College of Medicine, 1906; aged 64; died, June 20, in Fitzsimons Hospital, of carcinomatosis.

Cornelius S. Powell, Somerville, Tenn.; Meharry Medical College, Nashville, 1909; aged 53; died, June 10, of cardiorenal vascular disease.

Le Roy B. Sherman, New York; New York Homeopathic Medical College and Hospital, 1889; aged 72; died, June 15, of diabetes mellitus.

Winfield W. Pulliam, Dow, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; aged 81; died, June 5, of diabetes mellitus.

Horace Hobart Hollister, Cody, Wyo.; Long Island College Hospital, Brooklyn, 1874; aged 91; died, May 31, of chronic myocarditis.

James J. Beaty, Jennings, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1893; aged 70; died, June 22, of heart disease.

Hanna Burroughs Mulford, Haddonfield, N. J.; Cleveland Medical College, Homeopathic, 1892; aged 88; died, June 9, of arteriosclerosis.

William J. Davis, Los Angeles; Chicago Homeopathic Medical College, 1888; aged 70; died, May 11, of carcinoma of the prostate.

William D. Swaney, Columbia, Mo.; Medico-Chirurgical College of Kansas City, Mo., 1903; aged 59; died, June 4, of heart disease.

Cyrenius C. Sayles, Langston, Mich. (licensed, Michigan, 1900); Civil War veteran; aged 92; died, June 19, of cerebral embolism.

Charles T. Donohoe, Chicago; Jenner Medical College, Chicago, 1910; aged 63; died, July 25, of chronic myocarditis.

James Jaynes, Sneedville, Tenn. (licensed, Tennessee, 1889); aged 82; died, June 27, of nephritis.

John W. Hornby, Newark, Ohio; Columbus Medical College, 1888; aged 74; died, May 9.

Bureau of Investigation

THE B. & M. CASE

The Government Wins a Hard-Fought Case Against a Fraudulent Consumption Cure

The lay public, and even a large part of the medical profession, has little idea of the terrific odds against which federal officials have to work in order to protect the public against fraudulent nostrums. Following the Johnson case of some years ago, the United States Supreme Court decided in a divided opinion that the statement in the original Food and Drugs Act to the effect that any medicine which bore on its label a statement which was "false or misleading in any particular" really meant statements which were false or misleading in certain particulars, namely, only those relating to composition and origin and not those relating to therapeutic effects. This blow to the law resulted in a special message being submitted to Congress by the President, urging an amendment to the law that would specifically cover false claims for curative effects. The Sherley Amendment was the result. This amendment, in its original form, declared, in effect, that a "patent medicine" for which "false or misleading" therapeutic claims were made would be deemed misbranded. Due, however, to the political power of the "patent medicine" interests, this phrase was changed before the bill was passed to read "false and fraudulent."

As a result, federal officials, in order successfully to prosecute "patent medicine" quacks, have to prove not only that the therapeutic claims are false, but also that the manufacturer, in making such claims, has been guilty of intentional fraud. Only those who are familiar with court procedure can have any idea of the difficulties besetting the federal officials in their efforts to prove to the satisfaction of a lay jury that the exploiter of a "patent medicine" had not only lied about his product, but *knew* that he had lied!

On July 19, 1932, in the Federal District Court, Baltimore, a flagrantly fraudulent "patent medicine" known as "B & M" was declared misbranded. The case consumed more than three weeks and was considered by the officials of the Food and Drug Administration to be one of the most important in the history of the administration of the Food and Drugs Act. B & M, according to the testimony given in the trial, was originated by one W. P. McClellan who owned a livery stable and used B & M on his horses. F. E. Rollins, the present chief owner of B & M, was a bookkeeper for McClellan and gradually *acquired more and more stock in the* B & M company and finally purchased McClellan's interest. Rollins had also been a court reporter and used his knowledge of the rules of court evidence to his advantage in the present case.

B & M Remedy is marketed from Boston by the F. E. Rollins Company. It is a simple liniment of, essentially, turpentine, ammonia and egg. It used to be known as "B & M External Remedy" and the name of the company used to be the National Remedy Company. The stuff has always been sold as a remedy for such serious conditions as tuberculosis, pneumonia, influenza, and a number of other pathologic states.

Some twelve years ago the National Remedy Company was prosecuted in Massachusetts under the fraudulent advertising law of that state. The case was brought by Dr. William C. Woodward, who at that time was Commissioner of Health of Boston, but is now Director of the Bureau of Legal Medicine and Legislation of the American Medical Association. Dr. Woodward was successful in this suit and the concern was found guilty. To the best of our knowledge, this is the only case on record in which a "patent medicine" exploiter has been found guilty under a state law governing fraudulent advertising—although every state has such a law and such laws are probably violated every day of the year.

In 1922 the federal government brought a case against B & M, but because of lack of preparation on the part of the prosecution and an underestimate of the legal tactics of the exploiters of B & M, the nostrum concern won. Later the government made further seizures of B & M and in 1929 the company consented to a judgment of condemnation. They persisted, however, in selling their stuff as a cure for tuberculosis in spite of warning from the officials of the Department of Agriculture that in certain statements printed on the bottle, label and carton and in the literature accompanying the goods, they were violating the national Food and Drugs Act.

THE PRESENT CASE

In the case that has just been decided, the government brought suit against the F. E. Rollins Company, by way of seizure of this firm's goods, because of false and fraudulent claims for therapeutic effects made for the preparation in a booklet issued by the company. The trial lasted three weeks and was tried in the United States District Court at Baltimore before Judge W. Calvin Chesnut. Mr. Simon E. Sobeloff, district attorney at Baltimore, was counsel for the government.

The lawyer chiefly concerned in defending the F. E. Rollins Company was Melvin M. Johnson—who also is president of this "consumption cure" concern. Mr. Johnson, who was called also as a witness, testified that he is a member of the Massachusetts Bar Association, of the American Bar Association, a founder and life member of the American Law Institute, a professor in Boston University Law School, a trustee of Tufts College and *Chairman of the Board of Visitors of Tufts Medical School!* [Italics ours.—Ed.] Mr. Johnson had acted as counsel for the nostrum concern in its various other brushes with the authorities. It may be interjected at this point that it is not at all uncommon for a "patent medicine" concern to have a lawyer as an officer of its company. From a practical point of view, a lawyer and an advertising man are much more necessary to commercial success in the selling of quack remedies than is a physician or a pharmacist.

The government introduced as witnesses nineteen national authorities in the fields of medicine, surgery and pharmacology, who testified to the falsity of the claims made for B. & M. The sum and substance of the evidence given by these men was to the effect that B. & M. was not an effective treatment for tuberculosis and the other diseases mentioned. The physicians who aided the government were Drs. E. M. K. Geiling, Lewellys F. Barker, Samuel Wolman and Arthur Grollman, all of Johns Hopkins University; J. W. Sever of Boston; Victor Cullen, Superintendent of the Maryland State Sanitarium; Cleaveland Floyd of Harvard University; John B. Hawes, II, of Boston; Lawrason Brown of Saranac Lake; Gordon Wilson of the University of Maryland; Robert Kerr, Director of Tuberculosis Control Work of New Hampshire; Carl C. MacCorison, Superintendent of the North Reading Sanitarium, Mass.; J. F. McMurry of New York City; Clarence R. Hines, Amesbury, Mass.; Charles Kaufman of New London, Conn.; Lewis J. Battle and Caryl Burbank of Washington, D. C.; Paul Turner, Superintendent of the Kentucky State Sanitarium, and Robert Soutter of Boston.

THE TESTIMONY OF DAVID L. MARTIN

The only physician who went on the stand for the F. E. Rollins Company was the concern's "medical adviser," Dr. David L. Martin of Boston. Dr. Martin's testimony in the case gave eloquent evidence of his scientific background. After testifying that he was thirty-five years old when he was graduated by a homeopathic school, and prior to taking his medical course had been a preacher for nine years and that his congregation paid his way through medical school, he told the jury that he first heard of B. & M. when he was called to treat a patient with pneumonia. Dr. Martin said that he had prescribed Antiphlogistine, but that the patient's family suggested the use of B. & M. and Dr. Martin agreed that it was all right to use it. Later, he said, F. E. Rollins came to see him and, as Dr. Martin put it, "explained the work that he was doing with B. & M. and it appealed to me . . . so we have been working together ever since." Dr. Martin further testified that B. & M. was such a wonderful preparation that, when applied, the character of the eruption that it invoked indicated the nature of the ailment for which the patient was being treated! To quote from Dr. Martin's testimony:

> "Now, if a man has the flu, he will get an eruption of the vesicles filled with water; if it is t. b., we get an eruption with a little black pin head, mottled or pin head; if it is a mixed infection, we will get sometimes as large as the thumb-nail where the skin will slough right off."

Nor was this the only esoteric quality of B. & M. When Dr. Martin was asked if he had had any experience in treating a kidney infection with this "patent medicine," he replied:

> "Applying it over the kidney sometimes it will outline almost the absolute spot on the outline of the kidney on the back. I have had large abscesses drawn right out on the back from the use of B. & M."

Dr. Martin also described in his testimony cases of men and boys who had run nails through their feet, with resulting "blood poison," and on which he had used nothing but B. & M. When asked if he had never used tetanus antitoxin, he testified that he had not. When the Court expressed surprise, Martin said that while tetanus antitoxin was the routine treatment, he had never used it, but always used B. & M. and had never had any failures. He added, in answer to the judge's question, that he considered B. & M. "a sufficient substitute for anti-tetanus serum." Mr. Sobeloff, attorney for the government, asked Dr. Martin what he knew about tetanus as to its nature, and he replied that he knew nothing. But the attorney pointed out that as he had treated tetanus with B. & M., he must be familiar with the disease. Then followed this testimony:

Mr. Sobeloff.—What is tetanus?

Dr. Martin.—It is simply rapid inroad of the streptococcus infection in the blood stream.

Mr. Sobeloff.—Is tetanus a streptococcus infection or is tetanus an infection peculiar to itself of a specific germ?

Dr. Martin.—Well, I don't know that they have isolated the particular germ. I was taught it was streptococcus.

The Court.—What does it come from, doctor? What causes it?

Dr. Martin.—Nobody knows. It is a germ; one of those germs.

Later, in the same piece of testimony, when Dr. Martin was asked if he knew what the tetanus bacillus is, he replied: "I don't know; I am not up on those preparations." Dr. Martin testified that at first he was paid $50 a month for helping Rollins, but that later they increased his emoluments to $75 a month.

DR. PEASE AND THE PEASE LABORATORIES

But from the standpoint of the honor of the medical profession and the protection of the public health, the most disheartening feature of the case was not the obvious ignorance of Dr. Martin, but the statements by both F. E. Rollins and the company's lawyer-president, Melvin M. Johnson, that the booklet on which the government brought its case charging fraudulent claims, had been prepared and much of it written by Dr. Herbert D. Pease of the Pease Laboratories, New York City. The contract with Pease, according to the uncontradicted testimony in the case, was that nothing was to go into the booklet that Pease could not go into court and testify to.

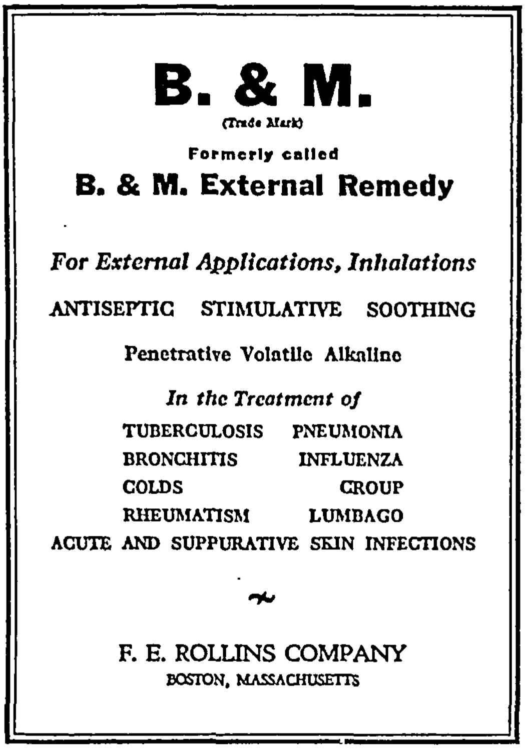
The testimony showed that Dr. Pease was hired first as "expert witness" by Mr. Johnson to testify in court in support of B. & M. Later, after Rollins and Johnson decided to change their "literature," Pease was employed to rewrite or edit the booklet. There was offered in evidence the manuscript of the B. & M. booklet, together with a letter with which it had been transmitted by Dr. Pease to Mr. Johnson. The letter, dated May 1, 1931, read:

> "Mr. Johnson, here is the material in a rather rough form. I trust the printer will do well with it. The tabulations should, of course, be set up evenly. There will be some proof corrections and I am not attempting to set things in detailed form tables just at present. The new plates are superior to the old. It might be well to have Mr. Fenwick see all this.
>
> Very hastily,
>
> H. D. Pease."

Both F. E. Rollins himself and his president-attorney, Melvin M. Johnson, practically rested their entire case on the fact that they had paid Pease $15,000, for which he was to revise their literature and give it a "scientific" background. This was to enable them to come into court and say, as they did say, that the best evidence of their good faith was that they had employed a physician who was supposed to rank high in his profession, who is a member of the New York State Medical Society and a Fellow of the American Medical Association, to furnish scientific evidence for the claims made for B. & M. and to permit no statement to go into their booklet that could not be supported by the man who had these qualifications.

It is worth reminding our readers at this point, that it was Dr. Pease who was alleged to have furnished a favorable report for the poisonous thallium acetate depilatory "Koremlu," as was brought out in The Journal of July 30, 1932. It is Dr. Pease who is quoted by the exploiters of the preposterous nostrum "Dur-Inda," previously known as "Lukutate." It was the Pease Laboratories that furnished the fantastic evidence for the exploiters of "Vapex," by which that concern purported to show that because a relatively large amount of Vapex, when enclosed in a small container, would give off enough fumes to destroy certain bacteria, that therefore a drop of Vapex on a pillow would kill the germs of a common cold. And B. & M., Koremlu and Vapex are by no means all of the nostrums for which the Pease Laboratories have furnished reports during the past few years.

It is significant that while Dr. Pease was present during the first part of the B. & M. trial when the government was presenting its case, he disappeared at the time when he could have gone on the stand to testify for the B. & M. concern which had hired him. His absence brought comment from the court and the preposterous implication from the nostrum interests that Pease had been intimidated by the American Medical Association. In order to get Dr. Pease on the stand the government attempted to subpoena him as its witness, but were unable to get in touch with Dr. Pease, either through his laboratory, his home, or any other place. Lawyer-President Johnson, in his closing argument, asked the jury to sympathize with the owner of B. & M. because the man (Dr. Pease) to whom he (Rollins) had paid $15,000 and who had written or checked every word in the pamphlet had "welched" and "walked out on him" at the last moment. Johnson said he would not rely on a "man who was yellow." Yet earlier in his testimony, Mr. Johnson admitted that it was he (Johnson) who had advised Rollins to employ Dr. Pease because he was a graduate of a good medical school, a Fellow of the American Medical Association, and an adviser of many large (nostrum?) concerns.



B. & M.
(Trade Mark)
Formerly called
B. & M. External Remedy

For External Applications, Inhalations

ANTISEPTIC STIMULATIVE SOOTHING

Penetrative Volatile Alkaline

In the Treatment of

TUBERCULOSIS	PNEUMONIA
BRONCHITIS	INFLUENZA
COLDS	CROUP
RHEUMATISM	LUMBAGO

ACUTE AND SUPPURATIVE SKIN INFECTIONS

F. E. ROLLINS COMPANY
BOSTON, MASSACHUSETTS

Photographic reproduction (reduced) of the front cover of the "B. & M." booklet, much of which, according to the sworn evidence in the B. & M. case, was written by, and all of which was prepared under the supervision of, Dr. Herbert D. Pease of the Pease Laboratories.

THE B. & M. BOOKLET

To return to the B. & M. booklet: About one-half of this book is made up of what is described as "Scientific Evidence," and which, according to Mr. Johnson, "was written by Dr. Pease and nobody else so far as we know." The so-called evidence is not scientific and the data that is furnished may be counted on only to confuse the lay public and to convey to that public the idea that there is a scientific basis for the use of this mixture of ammonia, turpentine and egg when applied to the chest as a means of "drawing out" the germs of tuberculosis from the lungs. Judge Chesnut, in his charge to the jury, in referring to this so-called "Scientific Evidence," said:

> "You can consider whether this scientific data thus arranged was for the purpose principally of being superficial impressions to the layman or whether it has any real value to B. & M. with regard to the diseases for which it is recommended. . . . You may possibly conclude that the effect of this arrangement of the booklet with reference to the so-called scientific evidence is to be impressive, rather than really informative."

The balance of the booklet that is said to have been prepared by Dr. Pease purports to explain the genesis of this nostrum and its method of accomplishing the astounding results claimed for it. In this we are told that while there are limits to self-medication, "the public ought to be permitted to decide those limitations for themselves." One is tempted to ask: Does Dr. Pease believe that one should leave to the decision of the lay public the advisability of self-medication in the treatment of tuberculosis, diphtheria, scarlet fever, venereal diseases, and other conditions that not only menace the individual, but menace, also, the community? The medical profession is damned with faint praise in this booklet and the charge is made that physicians are "slow to adopt and use drugs that have valuable therapeutic effects, unless the effects of those drugs are taught in the medical school." The old story is told of how the Peruvians discovered the value of cinchona bark centuries ago and how the Chinese have for generations been aware of the virtues of ma huang, both of which drugs were later to be adopted by scientific medicine. Then we read:

> "We are obtaining much information concerning some of the ways in which B. & M. works to do the good which we know from actual and practical use that it has done. We can show some features of it now. Meanwhile, shall we have to wait for centuries—like the doctors did before they prescribed quinine for malaria—until the doctors can prove just how the active principles of B. & M. work, before they will let their patients use it? Some doctors, we are happy to say, are broad-minded enough to use B. & M. now in proper cases."

All the way through the booklet, however, appear evidences of an attempt to lead the public to believe certain things without making definite claims for those things. In fact, the character of the booklet cannot be better described than it was by United States Attorney Sobeloff in his summing up before the jury. Said Mr. Sobeloff: "It is for you gentlemen [the jury] to say whether a man or a company can string together a lot of truths and half-truths, mysteriously, and with a wink in the eye, intimating certain conclusions without stating them, and then come into court and say: 'Nowhere do we use the word "cure".' "

The booklet records that Rollins, the chief owner of B. & M., believes that B. & M. actually penetrates to the seat of tuberculous infection and kills the germs themselves. Then follows this disingenuous statement, presumably by Pease:

> "We want to say frankly that we are not now able to prove by scientific and legally competent evidence that this is true. Neither has it been demonstrated to our satisfaction that it is not true."

B. & M. AS A CONSUMPTION CURE

In that part of the booklet giving directions and alleged information on the treatment of lung trouble by B. & M., a booklet, let it be remembered, that was declared under oath to have been prepared or approved by Dr. Pease, we read:

> "B. & M. gives great relief after the first few weeks and progress toward recovery is undoubtedly hastened by careful devotion to its free and persistent application according to directions."

Then follows an elementary description of how the tubercle bacillus attacks the lungs and how necessary it is to build up "body resistance." Then:

> "We commend all efforts toward such building up of resistance. We believe that the persistent use of B. & M. as recommended gives great aid toward that end . . . It helps to open up those lung areas which may have collapsed and in which the life processes have stagnated, if it can be brought into contact with them."

Later follows specific directions for the treatment of a patient with tuberculosis of the lungs: The patient should lie down and B. & M. should be poured on the chest, throat, sides and back, over the entire lung area. It should be spread on evenly at least six times at a sitting, and there should be at least two and preferably three daily applications of this kind. The turpentine and ammonia are likely, of course, to produce an eruption, in which case apply "Ex-Rem Ointment" —also put out by the F. E. Rollins Company.

In cases of tuberculosis of the throat, B. & M. should be applied as already directed and frequent inhalations of the stuff also taken, and it may be advisable to use a spray consisting of one part of B. & M. and ten parts of water. Tuberculosis of the cervical glands should be treated by regular free applications of B. & M., and the same methods used in cases of tuberculosis of the joints and other parts of the body.

In pneumonia, B. & M. is to be applied hourly, and the same method is to be used in treating influenza, except that in the latter it is to be applied to the entire trunk of the body.

In whooping cough the "paroxysms are often promptly relieved by frequent applications of B. & M. to the throat and upper chest." In rheumatic fever we are told that "if B. & M. is properly used at the first attack, the infection of the [heart] valves may never occur."

In cases of "blood poisoning," B. & M. is to be spread upon the part infected for twenty or thirty minutes. In acute rheumatism B. & M. will "help to allay inflammation of the joints or muscles," while in the chronic form of this disease "inflammation and pain may be expected to disappear and the joints become more flexible." The cautious injection of the phrase "may be expected" is again indicative of the character of the booklet.

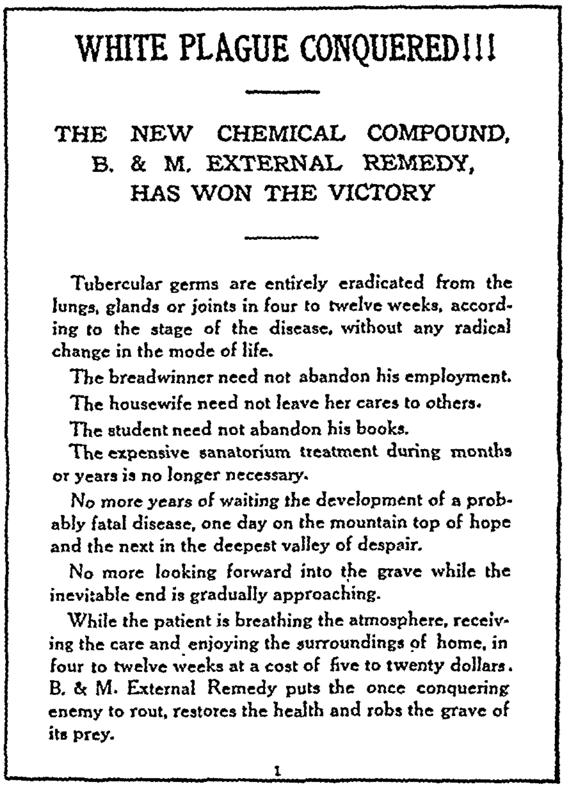
THE FENWICK "RESEARCH"

In addition to money paid to Dr. Pease, Rollins testified that he had had "research" work done in the Long Island Hospital, Boston, under one H. Benson Fenwick of that institution. Fenwick is now dead. The work, according to Rollins, was done on tuberculous patients and Fenwick was paid no less than $80,000 for the work! In some of the booklets issued prior to the "Pease booklet" there were reproduced what purported to be facsimiles of reports by Fenwick. One of these was written—wholly without the knowledge or authority of the institution—on the stationery of the Massachusetts College of Pharmacy and was dated August 20, 1926; another, almost identical in wording, was on Fenwick's own stationery and dated August 1, 1927; still another, also on Fenwick's stationery and nearly identical with the other two, was dated August 1, 1928. President-Attorney Johnson said that the physicians who had done the work with B. & M. at the Long Island Hospital would not testify for B. & M. because they were afraid to. Rollins testified that Fenwick told him that a report of the alleged successful clinical trials of B. & M. at the Long Island Hospital had been prepared and submitted to Dr. Soutter of the hospital, and was to be published in a St. Louis medical journal. Dr. Soutter was later called as a witness by the government and declared that he never heard of B. & M. or of the alleged clinical work for which Rollins paid $80,000.

The sales of B. & M. in 1928 amounted to $140,000, in 1929 to $140,000, in 1930 to $130,000, and in 1931 to $110,000. The net profits in 1926 and 1928 ran as high as $22,000. Rollins' personal salary has varied from $1,200 to $10,000, and since 1924 the concern has paid out nearly $100,000 for alleged scientific investigations and approximately $25,000 for legal expenses. What proportion of these huge sums represents the blood-money of impoverished and deluded consumptives?

During the trial, the B. & M. concern called to the stand a number of lay witnesses who alleged that they had been benefited or cured by the use of the liniment. The government proved, however, that some of these witnesses were still tuberculous and that in some instances the use of the preparation had caused considerable harm to the patient. A testimonial widely used by Rollins, it was shown by the government, had been written by a person who received checks at very definite intervals from the Rollins concern and who finally died of tuberculosis. Rollins himself, when on the stand, attempted to convince the jury that these checks were merely sent out of the goodness of his heart because the person who had given the testimonial was in need of money. The B. & M. concern also called, as one of its many witnesses, a middle-aged man who claimed that while he had been a sufferer from tuberculosis and had treatment in a number of sanitariums without relief, he had been cured several years ago by the use of B. & M. Attorney Sobeloff for the government, however, conclusively proved that this man who had claimed to be cured still had an active tuberculosis and had, in the very recent past, not only submitted a sample of his own sputum to a state sanitarium, but had undergone an x-ray examination which proved the presence of tuberculous lesions in both lungs. In fact, the cases brought in as witnesses at the trial developed essentially the same facts that had been developed by the Bureau of Investigation of the American Medical Association, which had, by correspondence, traced certain B. & M. testimonials to their sources: Namely, those persons who really had tuberculosis and had relied on B. & M. were either dead or still suffered from the disease. Others, who were well, had never had the disease!

Rollins and his associates argued that the word "remedy" has various meanings and that it should be interpreted as anything which would have a curative or alleviative effect in the treatment of disease. He emphasized that he did not use the word "cure." Judge Chesnut, however, in his charge to the jury, cut through the sophistries and instructed the jury that the standard dictionary meaning of the word "remedy," as implying a substance which had substantial worth in the cure of disease, was the one to be adopted.



WHITE PLAGUE CONQUERED!!!

THE NEW CHEMICAL COMPOUND,
B. & M. EXTERNAL REMEDY,
HAS WON THE VICTORY

Tubercular germs are entirely eradicated from the lungs, glands or joints in four to twelve weeks, according to the stage of the disease, without any radical change in the mode of life.

The breadwinner need not abandon his employment.

The housewife need not leave her cares to others.

The student need not abandon his books.

The expensive sanatorium treatment during months or years is no longer necessary.

No more years of waiting the development of a probably fatal disease, one day on the mountain top of hope and the next in the deepest valley of despair.

No more looking forward into the grave while the inevitable end is gradually approaching.

While the patient is breathing the atmosphere, receiving the care and enjoying the surroundings of home, in four to twelve weeks at a cost of five to twenty dollars. B. & M. External Remedy puts the once conquering enemy to rout, restores the health and robs the grave of its prey.

1

Photographic reproduction (reduced) of the first page of one of the earlier "B. & M." booklets published at a time when Rollins had not developed the caution he now exhibits.

Two opinions expressed by the court in his instructions to the jury may be counted on to have a profound influence in the interests of public health and safety. The judge declared that a grave responsibility rests on the shoulders of the manufacturers of medicinal products and he quoted a pronouncement of the United States Supreme Court that persons who make or deal in products alleged to have curative powers are in a position to have, and are expected to have, superior knowledge in connection with the preparation and marketing of such articles. Judge Chesnut also emphasized that merely because a manufacturer asserts his belief in the virtues of his product, that is not to be construed as proof of good faith when the opinion of the manufacturer is opposed by overwhelming reputable medical testimony to the contrary. Rollins had access to reputable medical opinion in the manufacture and testing of his liniment, but had made no use of it. It is true that he claimed to have paid the Pease Laboratories $15,000 for the work already referred to, and he also testified that he had paid as much as $80,000 to some individuals connected with the Long Island Hospital who were alleged to have assured him by voluminous reports that B. & M. would do the things claimed for it.

That department of the government which is entrusted with the difficult duty of protecting the public from adulterated or misbranded drug products deserves great credit for the thorough and exhaustive way in which it prepared its prosecution of this case. The case itself was a crucial one in the history of the Food and Drugs Act. Upon the decision largely hinged the continued enforcement of the Sherley Amendment. No doubt the forces of evil in the proprietary medicine field have followed the B. & M. case with an interest that has been more than academic. Especial credit in the work of preparing the voluminous evidence is due to Drs. F. J. Cullen and C. E. Holton and Mr. George P. Larrick, all of the Food and Drug Administration, and to Messrs. J. F. Moore and J. B. O'Donnell of the Solicitor's office. Of course, back of all of this work lay the untiring efforts of Mr. W. G. Campbell, Director of Regulatory Work of the United States Department of Agriculture.

The two outstanding features of this case—as viewed by any intelligent student of the American scene—are these: First, the fact that it has been possible for years to sell broadcast to a particularly unfortunate group—the tuberculous—a fantastic fraud that does not have even the plausibility of ignorance in its favor. Yet it was necessary for a department of the United States government to spend thousands of dollars and expend untold effort, to say nothing of the enlisting of the help of many of the leading medical scientists of the country, to get a legal decision that B. & M. is a fraud. Second, is the astounding spectacle of a Fellow of the American Medical Association selling his services to the exploiters of what, to a physician with any knowledge of medicine, is a self-evident fraud; and selling such services for the purpose of enabling the exploiters of this wretched nostrum to continue to do business. And, greatest irony of all, for more than a quarter of a century the American Medical Association has been the one, and practically only, agency that, year in and year out, has endeavored to protect the public against just such frauds as B. & M.

Correspondence

"VITAMIN DEFICIENCIES AND NERVOUS SYSTEM LESIONS"

To the Editor:—In the editorial on "Vitamin Deficiencies and Nervous System Lesions," July 9, you quote an article of ours as attributing softenings in the cerebellum of chicks to a lack of vitamin E. Reference to our papers "A Cerebellar Disorder in Chicks, Apparently of Nutritional Origin" (*J. Exper. Med.* **53**:11 [Jan.] 1931) and "Nutritional Encephalomalacia in Chicks" (Transactions of the American Society for Experimental Pathology, April, 1931, *Arch. Path.* **12**:134 [July] 1931) will show that we have not ascribed these cerebral degenerations to a lack of vitamin E. The statement in the editorial may have been quoted from the article of Zimmerman and Burack (*Arch. Path.* **13**:229 [Feb.] 1932). These authors erroneously cite us as attributing these lesions to a lack of vitamin E.

Although the exact factor in the production of nutritional encephalomalacia of chicks has not been worked out, we have abundant unpublished evidence that wheat germ oil and other rich sources of vitamin E do not protect against the disease. Our experiments also exclude vitamin G as a possible factor.

Alwin M. Pappenheimer, M.D.,
Marianne Goettsch, Ph.D.,
New York.

DIAGNOSTIC SIGN FOR PLEURAL FLUID

To the Editor:—I am not aware that the following sign for the detection of fluid in the pleural sacs has been described heretofore, nor can I find any reference of it in standard works on physical diagnosis or in other medical treatises. In my hands it has proved to be a rapid, easy and useful sign by which to determine the presence of fluid of sufficient amount to be detected by ordinary methods of percussion.

Nellis B. Foster wrote: "Physical signs over fluid are variable to an extreme, and there is no combination of them which invariably indicates fluid."

If the abdominal cavity contains fluid (over 800 cc.), simple tapping of one flank with the fingers will produce vibrations or succussions on the opposite side to the palpating fingers of the other hand. This procedure is as old as any other in physical diagnosis.

If the fluid in the pleural sac is above a trifling amount (400 cc.), percussing the area over it posteriorly with the slightly flexed fingers will cause repercussions or vibrations to be felt easily by the fingers of the other hand pressed against the lumbar muscles on the same side, about the level of the third lumbar vertebra. If both sacs contain fluid, waves produced on one side will not be transmitted to the other side. They will not cross the mediastinum. If the sac on one side is so distended with fluid that it is pushed over to the other side of the spine, producing the paravertebral triangle of dulness (Grocco's sign) percussing the fluid on the suspected side will produce vibrations in the triangular area. If the chest wall is bulged by an excess of fluid, the phenomenon is more marked because of the increased tension of the liquid, and repercussions will be detected like those felt on a drum head.

In case of consolidation, as in pneumonia, without the effusion of fluid, percussion over the posterior walls of the chest (over the area of dulness) will not bring about these vibrations. The test seems to be a good differential sign between liquid and consolidated lung. The test must be performed with the patient sitting upright in order that the dependent fluid may be spread over the diaphragm. In examining patients with fluid in the pleura above the width of four ribs, I found my observations in twenty cases confirmed by aspiration or roentgen examination as well as other well known signs.

The weight of the fluid in the pleural sac has much to do with the tension of the diaphragm, sitting upright increases this because the fluid is distributed widely over the diaphragm. These vibrations felt over the quadratus lumborum are sharp, rapid in the presence of fluid and constitute a marked tremor. This weighted diaphragm, if the patient is sitting upright and leaning forward, will produce vibrations in the quadratus of the opposite side, because, very often the collection of fluid is so massive that the diaphragm, so vibrating, excites both quadrati. From the diaphragm the vibrations are transmitted to the last rib, one of its insertions is to this member, through the arcuate ligaments. The upper insertion of the quadratus is to the last rib. This muscle is without doubt an accessory muscle of respiration. If the reader will but feel his quadratus muscle he will mark it contracts violently when he coughs hard. It serves as a fixator to the diaphragm and can be looked upon as an extension of this member outside of the torso. Upon these anatomical facts the method depends. The erector spinae muscle in the thorax, if percussed, will often excite contractions in its lumbar portion; these contractions must not be confused with the vibratory tremor induced by percussed fluid. The quadratus is made tense if the patient leans forward, it does not contract but vibrates when the chest is percussed. Leaning forward puts this muscle on the stretch, increases its tonus to the tension of a bow string. This position is important. A stretched piece of parchment would vibrate if it was in the place of the muscle. In heavily muscled men, sometimes the quadratus will exhibit slow heavy waves when the chest is palpated under the above conditions. Palpating the quadratus when the chest is percussed in the presence of fluid is the best way to distinguish these two kinds of vibratory phenomena. The waves are probably magnified in the quadratus because the long diaphragm and quadratus make leverage effect when the chest is percussed. The last rib serves as fulcrum. Then, too, hydraulic phenomena have much to do with the magnification.

The upper level of the fluid may be determined by this method. If one percusses over fluid beginning at the top percussing downward, and palpating the muscle at the same time, the vibrations will begin to be felt when this level is reached. This method seems to be reliable in denoting this. With a cannula in the chest fluid proving its presence, I found that by lowering the level from a previously determined top by evacuating 30 cc. the fluid diminished the width of two vertebrae, noted again by percussing the chest and palpating the quadratus. The method not only will locate the extent of the effusion but will detect it as well. In this case the film of fluid between the ribs and the lung must have been very thin, because 30 cc. covered the entire width of the lung. It appears from this observation that the method will prove the presence of very small amounts of fluid.

Robert L. Pitfield, M.D., Germantown, Pa.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SKIN GRAFTING AFTER BURN

To the Editor:—I have a patient who was badly burned in January as the result of an attendant's carelessness in applying an electric pad to her paralyzed right leg. The skin has healed, but there is still an exposed surface of the tibia measuring about 1½ inches by 1 inch. The periosteum was destroyed in this area by the burn, but the exposed bone appears perfectly healthy. The open area is undoubtedly growing smaller, but at such a slow rate that it may take another year for it to close up. I can find no information in my own library concerning the best method of treatment. Will you please tell me what is now considered the best way to treat this condition?

J. L. Rains, M.D., Seattle.

Answer.—Lesions of the leg tend to heal slowly, especially when the circulation is impaired by a paralysis. Conservative methods are probably useless, although the ulcer area might be kept covered with narrow strips of adhesive plaster, changed every three or four days. If no healing should result within a few weeks, operation would be indicated. If there is a layer of granulation tissue, it should be freshened with a knife or a curet and Thiersch grafts put on. If the surface of the bone is present in the wound there is probably a thin cortical sequestrum of dead bone. This should be chiseled off and, after granulations have formed, Thiersch grafts may be placed on this area. This might heal under adhesive strapping, although it is preferable to cover such areas with skin grafts.

ENDAMEBA COUNCILMANIA LAFLEURI

To the Editor:—In Todd and Sanford's "Clinical Diagnosis by Laboratory Methods," edition 6, page 57, section 5, in the paragraph heading "Other Endamebae," the following statement is made: "Under the name Councilmania lafleuri, Kofoid and Swezy recently described an exceptionally actively motile endameba which ingests red blood corpuscles and is probably pathogenic. Its cysts are very thick walled, ovoid, 16 to 20 microns in diameter, and contain eight nuclei. It is not accepted by all protozoologists." Will you please inform me as to the present status and pathogenicity of this organism? Please omit name.

M.D., New Mexico.

Answer.—In 1921, Kofoid and Swezy described Councilmania lafleuri as a new ameba of the human intestine (University of California Publications on Zoology **20:**169). In 1922 Gunn (*J. Parasitology* **9:**24 [Sept.] 1922) recounted studies which he felt disproved the assertion that this form was actually new. In 1924, Kofoid, Swezy and Kessel (University of California Publications on Zoology **26:**21) gave further data in support of their view. In April, 1926, Wenyon discussed the question in extenso in his monograph on Protozoology (p. 221) and concluded thus: "The writer still believes that there is no justification for the genus Councilmania and that the characters which distinguish C. lafleuri from Endamoeba coli fall within the range of variation of E. coli itself." Several brief papers since that date have offered support for each side of the question, but no thorough study has been made. In Problems and Methods of Research in Protozoology by Hegner and Andrews (New York, Macmillan Company, 1930), the problem is not even mentioned. One contributor uses the name, another avoids using it. The question is certainly still *sub judice.* Until further evidence is secured, both the name and its rôle in the human body cannot be settled.

PERSISTENT FURUNCULOSIS

To the Editor:—I have under my care a woman, aged 33, who has suffered from furunculosis for the past seven months. The past history, except for iridocyclitis in the left eye twenty years ago, is negative. About thirteen months ago she gave birth to a normal girl and was nursing the child for nine months. It happened during the last lactating months that she developed the furunculosis, especially on the trunk under the breasts and on the lower extremities. The face and neck were spared. The furuncles developed into considerable sized abscesses, painful, discharging thick but not abundant pus, and leaving disfiguring scars. There are usually two abscesses appearing at the same time. Her physical condition is negative. During the onset of the furunculosis she was overweight, but she has lost considerable weight since and become anemic, the hemoglobin being 68 per cent. The urine shows a slight trace of sugar. The blood sugar (65 mg. per hundred cubic centimeters) and chemistry are normal. The Wassermann reaction is negative. Blood culture did not reveal any abnormality. I tried vaccine, foreign protein treatment, roborant tonic, sulphonated bitumen ointments, sulphur baths, ultraviolet rays, dietetic treatment to eliminate the traces of sugar (lactose), and arsenic (solarson) injections. Liver therapy is being tried to increase the hemoglobin and improve the secondary anemia. But there seems not to be any sign of abatement of this condition. Please suggest any further treatment. Do you approve injections of the patient's own blood? Please omit name and address.

M.D., New York.

Answer.—Evidently this case of furunculosis presents unusual difficulties. The measures previously instituted will usually control an ordinary furunculosis. Since the patient's general physical condition is satisfactory, the persistence of the eruption cannot readily be explained on the basis of a debilitating systemic disease. The subsequent development of abscesses with disfiguring scarring suggests skin lesions other than ordinary furuncles. If it has not been done, studies by smear, culture, and animal inoculation should be made for the bacillus of tuberculosis and the mycotic infections. It is possible that a biopsy might clinch the diagnosis. If the lesions are, however, the ordinary furuncles, the patient should be carefully instructed not to manipulate them. Sulphur baths and small doses of foreign protein should be continued over a considerable period. There can be no objection to giving four or five injections of the patient's own blood parenterally. The carbohydrate intake should be kept at a low level.

PRURITUS IN DIABETIC PATIENT

To the Editor:—I have a diabetic patient, aged 63, who is suffering from intractable generalized itching of the skin. The diabetes is well controlled by diet and insulin, so that sugar appears in the urine only occasionally. I have tried various lotions with only temporary relief. He sleeps fairly well, and during the night the itching subsides somewhat. Sedatives have been tried but do little good. At present I am giving him calcium gluconate, 20 grains (1.3 Gm.) daily. Can you suggest any treatment that might give more or less permanent relief? Please omit name and address.

M.D., Illinois.

Answer.—Generalized itching of the skin in elderly persons with diabetes is comparatively rare and is sometimes exceedingly difficult to control. As far as treatment is concerned, the usual procedures, such as calamine lotion, keeping the skin well oiled, may be of no avail, in which case therapeutic x-rays may be tried. There are two suggestions that may be made: (1) to see whether the treatment of the patient with a lower diet and no insulin might be of some effect, and (2) to have a basal metabolism test done. If the test shows a minus rate, thyroid in therapeutic doses at times alleviates itching.

POTASSIUM SALTS AS CARDIAC REGULATOR

To the Editor:—Kindly note the following newspaper clipping about potassium salts as a cardiac regulator, reported by Dr. John J. Sampson at the A. M. A. Session in New Orleans: "Certain potassium salts correct irregular heart beats and slow down too rapid heart action, according to John J. Sampson, M.D., of San Francisco. He said it is found this form of potassium can be taken safely by mouth. Its effects begin in thirty to fifty minutes, and last six to eight hours." I should like to get the preparation and the dose.

H. J. Friedman, M.D., San Antonio, Texas.

Answer.—Doses of from 2 to 4 Gm. of potassium acetate, in 25 per cent aqueous solution, were given every six to eight hours.

PERSISTENT URTICARIA

To the Editor:—I am being tormented by a persistent urticaria, at times and locations with the usual wheals, when scratched, but also with widespread local pruritus, chiefly at night. Frequently I pass most of the day in comfort, with occasional local irritation. I have checked up all skin tests for every food used, none giving a positive reaction. But anyway, I have for a week at a time eliminated from my diet anything that I thought might be at fault — milk, wheat, eggs, sugar. There is not a trace of sugar in the urine, and the sugar in the blood is about normal. I have taken a good saline purgative, with subsequent restriction of diet to fruits and vegetables and alkalis to the point of neutralizing the urine. I have checked up all possible sources of local irritation, such as bath and laundry soaps and bathroom powder, even leaving off my daily bath for a week. I am 65 years old, 150 pounds (68 Kg.) in weight, and I think, a normal human being. I have plenty of outdoor interests and exercises, am of regular habits, use no tobacco or stimulants, sleep on an open porch, go to bed at nine, arise at six, and do nothing to which I could judge that a nervous element could be contributing. If you can suggest anything it would be most gratefully received. I have just noticed an abstract in The Journal of May 7, page 1692. Could you say anything along this line? If so, kindly designate method and dosage for use and where the sodium dehydrocholate is obtainable. Please omit name and city.

M.D., Louisiana.

Answer.—The treatment of chronic urticaria has not been as satisfactory as that of bronchial asthma and hay fever, yet good results are frequently obtained. The condition is usually due to a food, but some cases are caused by contact with something that irritates the patient. This may be some substance such as silk or wool or something in the bedroom; e. g., a hair mattress or a feather pillow. These factors should be thought of and removed. Protein sensitization tests coupled with food elimination diets are often successful in pointing out the cause. If all these fail, and they often do, one resorts to nonspecific methods of treatment. One of these is the use of bile salts. No doubt all bile salts act more or less similarly. Sodium choleate (sodium choleinate), Merck, is dried purified ox-gall; it is claimed to contain, for the most part, sodium salts of glycocholic and taurocholic acids, along with some cholesterol, choline and lecithin. The dosage is from 0.3 to 0.6 Gm. (5 to 10 grains). Sodium dehydrocholate is marketed as Decholin Sodium (New and Nonofficial Remedies, The Journal, March 12, p. 887).

REACTION TO DRUGS

To the Editor:—A patient who has influenza with coryza has taken acetylsalicylic acid for one day, beginning the following day with a different brand, in the usual dosage, for three days. An added cold was taken and the patient then took amidopyrine for several days, one tablet every four hours, or one 5-grain tablet every four, six or eight hours as symptoms indicated. After about four days a papular rash appeared on the flexor surfaces of the arms and back, somewhat on the abdomen, legs, neck and chest, and somewhat less on the back, arms and legs. Itching was not so noticeable at first as it was after a day or so. The patient also was taking a nasal spray of ephedrine (Swan-Myers Company). It developed that a sinus condition was present that was not draining well. All medicines have been stopped. Elimination, bowels, skin and kidneys are all active, with fluid increased. The patient cannot sleep. Just what may be given safely in order not to increase the skin irritation and to induce sleep? Please omit name.

M.D., Iowa.

Answer.—In case the eruption described is due to one of the medicines that he has been employing, it is probable that the patient would be able to take any of the standard sedatives without danger of increasing the eruption, since the sensitivity may exist for only a single drug. In case the eruption seemed to be increased on taking one of these synthetic sedatives, this should be discontinued and bromides might be employed. It is impossible to suggest any single agent to which some individuals might not react.

PYELITIS AFTER OTITIS MEDIA

To the Editor:—What would you consider the best treatment in the following cases: About twelve weeks ago I did a paracentesis in four cases of acute purulent otitis media in children between the ages of 8 and 10. They all presented pyelitis with numerous pus cells and some erythrocytes, a few hyaline and granular casts, and acid reaction. The ear conditions cleared up entirely, but in all cases the urine remained unchanged despite protein and salt-free diet, general care, ultraviolet irradiations and ingestions of Pyridium. Please omit name.

M.D., New York.

Answer.—The most important thing is to determine whether the children are suffering from a pyuria of bacterial origin or whether they are still suffering from a postinfectious hemorrhagic nephritis. A culture of the catheterized urine will rule out the former and a careful examination of the urinary sediment as well as tests for albumin and examination of the blood urea will determine the latter. The treatment will depend on the diagnosis. If a pyelitis, the administration of methenamine after acidifying the urine with ammonium chloride, 1 Gm. four times a day, should clear up the infection rapidly if there is no urinary anomaly. Treatment of the nephritis will depend on the condition found. Pyridium has not been established as useful in infections of the urinary tract.

MULBERRY TREE AS SOURCE OF SENSITIZATION

To the Editor:—Can you inform me or direct me where I can find out whether mulberry trees are poisonous: leaves, bark or roots of the black and white mulberry trees? What I should like to know is whether they could poison by direct contact or produce an allergy resulting in an allergic dermatitis. There is no mention made of this in any of my books, and my druggist says that his books do not mention that they are poisonous.

H. W. Eby, M.D., Goshen, Ind.

Answer.—A search of the literature failed to reveal any mention of skin trouble from contact with mulberry trees. There are listed ten species of mulberry trees (Morus), four of which occur in the United States. The paper mulberry (Papyrius papyrifera Kuntze) has recently been definitely shown by Bernton (*J. Lab. & Clin. Med.* **13**:829 [June] 1928) and by Balyeat and Rinkel (*J. Allergy* **3**:7 [Nov.] 1931) to be an important cause of hay fever and asthma. It pollenates is April and May and it is a common tree in the eastern and southern parts of the United States. Its pollen is highly toxic. From what is known of other pollen, such as ragweed and grass, the pollen of the paper mulberry tree might well cause skin disease.

STATISTICS OF DISEASES OF THE EYE

To the Editor:—I am anxious to get statistics as to the percentage of people in the United States who have squint, progressive myopia and glaucoma. Have you this information available, or do you know where I might be able to get it?

Gordon H. Gliddon, Hanover, N. H.

Answer.—There are no statistics available to answer these questions. Statistics from some of the various well organized clinics as well as statistics from private practice can show the percentage of squint, progressive myopia and glaucoma as they occur among the patients who visit that clinic or private practice; but this bears no relationship to the population as a whole. Even in a country as statistically minded as is Germany, such figures are mostly guesswork.

PUPILLARY REACTIONS IN PERNICIOUS ANEMIA

To the Editor:—Does paralysis to both light and in accommodation of the eyes occur in pernicious anemia? I can find where optic atrophy and hemorrhages into the retina occur, but no mention of the loss of the reflexes mentioned.

J. D. Butzner, M.D., Scranton, Pa.

Answer.—In a few cases of pernicious anemia, the pupils have been found to be moderately dilated, although reacting promptly to light and in accommodation. As far as can be found from a search of the literature no specific pupillary paresis has been described, although in some cases there have been pupillary disturbances secondary to the extensive hemorrhages in the retina and optic nerve. As a rule the main ocular changes in pernicious anemia are to be found in the background of the eyes.

RECTAL ETHER ANESTHESIA

To the Editor:—In Queries and Minor Notes (The Journal, May 28) the question is asked whether "rectal ether anesthesia (Gwathmey method) is contraindicated in infections of the respiratory tract because of the danger of ether pneumonia during the period of elimination." This question is rightly but not completely answered as it might be when it is stated that there is doubt whether it is sufficiently concentrated in rectal analgesia to affect the lungs. The amount usually given in rectal anesthesia is 2½ ounces (75 cc.) of ether. It escapes from the lungs at the rate of 1¼ drachms (4.65 cc.) every five minutes. It is moistened and warmed by the time it reaches the lung. I have never known of a pneumonia to follow ether when given by rectum, in three or four times the amount given in obstetric cases.

A few years ago, in association with other physicians, I gave a tuberculous patient 2 ounces (60 cc.) of ether and 1 ounce (30 cc.) of oil by rectum three times a week for more than four months with the hopes of affecting his disease favorably. While the patient stated that he felt better after each treatment, his chart showed no improvement in any way, and the method was abandoned. Later I gave by rectum to a patient with an enlarged tongue 5 ounces (150 cc.) of ether and 2½ ounces (75 cc.) of oil for the surgical removal of the obstruction. The patient's sputum was changed from a positive to a negative culture, but unfortunately he disappeared from the hospital as soon as his tongue was healed. There are references in medical literature for a theoretical basis for the treatment of tuberculosis of the lung by ether. From a large clinical experience, I can state positively that ether is not contraindicated in obstetric cases when given by rectum, regardless of whether the lesion is active or quiescent.

All authorities are agreed that ether is contraindicated by inhalation in any stage of tuberculosis.

James T. Gwathmey, M.D., New York.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board for Ophthalmic Examinations: Montreal, Sept. 19. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

American Board of Obstetrics and Gynecology: The examination will be held in nineteen different cities in the United States and Canada, Oct. 22. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

American Board of Otolaryngology: Montreal, Sept. 17. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

California: *Reciprocity.* Los Angeles and San Francisco, Sept. 21. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

National Board of Medical Examiners: The examinations in Parts I and II will be held at all centers where there are five or more candidates available in a Class A medical school, Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

New Hampshire: Concord, Sept. 8-9. Sec., Dr. Charles Duncan, Concord.

New York: Albany, Buffalo, New York and Syracuse, Sept. 19-22. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 State Education Bldg., Albany.

Oklahoma: Oklahoma City, Sept. 13-14. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, Sept. 6. Sec., Dr. O. Costa Mandry, Hospital Mimiya, Santurce, San Juan.

Wisconsin: *Reciprocity.* Milwaukee, Sept. 13. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Connecticut March Report

Dr. Thomas P. Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held in Hartford, March 8-9, 1932. The examination covered 9 subjects and included 70 questions. An average of 75 per cent was required to pass. Sixteen candidates were examined, 13 of whom passed and 3 failed. Eleven physicians were licensed by endorsement. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Yale University School [illegible]	[illegible]	84.9
Georgetown University [illegible]	[illegible]	75, 75.5
George Washington Uni[illegible]	[illegible]	78.6
Boston University Schoc[illegible]	[illegible]	75, 79.6
Harvard University Me[illegible]	[illegible]	76.4
Tufts College Medical [illegible]	[illegible]	81.1
University of Vermont [illegible]	*(1931)*	78.3
McGill University Fac[illegible]	(1928)	89.6
Osteopath*		78

College FAILED	Year Grad.	Per Cent
George Washington University School of Medicine	(1930)	72.2
University of Naples Faculty of Medicine and Surgery	(1923)	68.5
Osteopath †		73

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Med.	(1928) Maryland, (1929)	N. B. M. Ex.
Emory University School of Medicine	(1921)	New York
Johns Hopkins University School of Medicine	(1925), (1928)	N. B. M. Ex., Maryland
Harvard University Medical School	(1926)	N. B. M. Ex.
Washington University School of Medicine	(1927)	Virginia
Columbia University College of Phys. and Surgs	(1920)	New York
Ohio State University College of Medicine	(1916)	Ohio
University of Texas School of Medicine	(1921)	Texas
University of Toronto Faculty of Medicine	(1929)	N. B. M. Ex.

* Licensed to practice surgery.
† Examined in medicine and surgery.

Florida June Report

Dr. William M. Rowlett, secretary, Florida State Board of Medical Examiners, reports the examination held at Tampa, June 13-14, 1932. The examination covered 10 subjects. An average of 75 per cent was required to pass. Forty candidates were examined, 37 of whom passed and 3 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1931)	80.9
Atlanta Medical College	(1916)	77.8
Emory University School of Medicine	(1932)	83.5, 85, 86, 87.1
Southern College of Medicine and Surgery	(1913)	76.3
University of Georgia Medical Department	(1913) 75, (1928)	84.8
Loyola University School of Medicine	*(1932)*	88.8
Indiana University School of Medicine	(1931)	83.8
University of Indianapolis Medical Department	(1897)	78.6
Kentucky University Medical Department	(1904)	75.3
University of Louisville School of Medicine	(1930), (1931)	87.4, 84.4
Tulane University of Louisiana Medical Department	(1910)	79.2
Tulane University of Louisiana School of Medicine	(1929), (1932)	82.6, 83.6, 86.7, 87.3
Johns Hopkins University School of Medicine	(1928)	86.9
University of Maryland School of Medicine and College of Physicians and Surgeons	(1929)	91.1
Harvard University Medical School	(1932)	86.1
University of Michigan Medical School	(1931)	86.5
St. Louis University School of Medicine	(1930)	84.9
Syracuse University College of Medicine	(1932)	84.7
University of Cincinnati College of Medicine	(1916)	77.2
Hahnemann Medical Coll. and Hosp. of Philadelphia	(1926)	84.9
Woman's Medical College of [illegible]	[illegible]	87.4
Meharry Medical College [illegible]	[illegible]	81.4
University of Tennessee Coll[illegible]	[illegible]	85.4
Baylor University College of [illegible]	[illegible]	84.1
University of Toronto Facult[illegible]	[illegible]	82.4
University of Havana Faculty of Med. and Pharm.	(1928)*	77.7

College FAILED	Year Grad.	Per Cent
Chicago Homeopathic Medical College	(1889)	71.5
Detroit College of Medicine	(1904)	70
University of Tennessee Medical Department	(1904)	54.7

* Verification of graduation in process.

Book Notices

Surgical Pathology of Prostatic Obstructions. By Alexander Randall, M.A., M.D., *Professor of Urology, University of Pennsylvania.* Cloth. Price, $7. Pp. 266, with 100 illustrations. Baltimore: Williams & Wilkins Company, 1931.

This book represents an analysis of various types of gross prostatic pathologic changes extending over a period of ten years at the Philadelphia General Hospital. Out of a total of 1,215 necropsies, 312 cases, or 25.6 per cent, of gross pathologic changes were found, of which 65 per cent were in white persons and 35 per cent in Negroes. Since numerous investigators have contributed much toward the microscopic side of prostatic pathology, in this treatise the author had only the questionable specimens studied microscopically. Hypertrophy, median bar, carcinoma and abscess were especially studied in regard to their incidence, characteristics, relation to age, clinical conditions, race, and the best type of surgical procedure to be carried out. The book is divided into six chapters. The illustrations show the various characteristic types of prostatic pathologic lesions. Benign prostatic hypertrophy was found to be the most common lesion, with true fibrous median bar second, while carcinoma and abscess were less common. The first part of the book shows the incidence of the different types of prostatic disease. Each lesion is illustrated by plates showing the different gradations of each type with a history of the case followed by a gross pathologic description. Results of microscopic examination were included when there was any doubt as to the diagnosis. Evidence of a malignant condition appeared in 7.1 per cent of the entire study, and in the majority both lateral lobes were involved while the posterior lobe remained free. This is important, as the general belief is that the posterior lobe is most commonly involved first in carcinoma of the prostate.

The book, with its histories of the cases presented, the discussion, and the charts and plates, gives the urologist a work of unprecedented value.

Initiation aux examens courants de la gorge, du nez et des oreilles. Par Henri-Pierre Chatellier, oto-rhino-laryngologiste des Hôpitaux de Paris. Préface de L. Baldenweck. Paper. Price, 50 francs. Pp. 323, with 152 illustrations. Paris: Masson & Cie, 1932.

After some general advice regarding the proper attitude toward patients, the author suggests some principles of examination of the throat and the larynx. With reference to the latter, the various types of indirect as well as direct methods are discussed. This is followed by two chapters on rhinoscopy both anterior and posterior. Considerable attention is given to the examination of the sinuses and the method of puncturing the antrum of Highmore. Examination of and methods of inflation of the eustachian tube are the subjects next discussed. This is followed by a general description of the methods of examination of the ear, with reference in particular to the external parts. The function of the internal ear is then discussed from the standpoint of the examination of audition, followed by vestibular tests. The usual tuning fork tests are mentioned as well as the use of the monochord. Examination of the vestibular apparatus is entered into with considerable detail. Throughout the work the author is careful to call attention to the exact technic that is used in the examination and shows by means of illustrations drawn by himself the anatomy of the various parts described and the method of manipulating the patient in making the various tests. The work will be of definite value to the advanced student in medical schools, the general practitioner who has to make some of the elementary examination of the ear, nose and throat, and last, but not least, the man about to take up the specialty of otolaryngology.

Directory of Psychiatric Clinics in the United States. Compiled and edited by the Division on Community Clinics of the National Committee for Mental Hygiene. Paper. Price, $1. Pp. 165. New York: Commonwealth Fund, 1932.

The growth of the child guidance movement is clearly indicated by a comparison of this volume with the earlier editions published in 1925 and 1928. The number of clinics listed is:

1925	318
1928	492
1931	674

The great increase during the last three year interval is due in part to the inclusion of psychiatric clinics for adults in the latest edition; but as there are only fifty in this group, the net increase of clinics serving children is approximately 130. Of the 674 clinics in the country, 232, just over a third, provide the complete service of psychiatrist, psychologist and psychiatric social worker. The new edition, which is believed to be complete, represents a canvass of the entire country. Not only psychiatric clinics but also neurologic clinics, so called, were included when they were found to offer, in reality, psychiatric service. No attempt has been made to evaluate the clinics, but the directory indicates clearly the type of organization and the scope of each.

Thérapeutique médicale. III: Foie, glandes endocrines et nutrition. Par Maurice Loeper, professeur de thérapeutique à la Faculté de médecine de Paris. Avec la collaboration du Dr. André Lemaire, chef de laboratoire à la Faculté. Paper. Price, 50 francs. Pp. 377, with 58 illustrations. Paris: Masson & Cie, 1931.

The French physician needs no therapeutic consultant. Apparently his library must keep freshly littered with the simply amazing number of therapeutic monographs on every subject and subhead foisted on their medical fraternity in a continuous outpouring. Every volume advertises a future series. One must shruggingly conclude that these postgraduate manuals fill the need of the French practitioner; otherwise, the publisher would find no market. This volume of a series on medical therapeutics treats of nutrition generally and of disorders of the liver and endocrine glands. It includes chapters on gout, obesity, chronic rheumatism, phosphorus, calcium and vitamins, and a concluding chapter on urinary excretion. Nothing is taken for granted. Predigestibility, simplicity and availability of the contents are served by a detailed summary at the beginning and a list of prescriptions at the end of each chapter. Schematic histology and graphs illustrating the mode of drug action add to the clarity of the book. The material is concise and represents a practical summary. The chapter on general physiology of digestion is especially interesting. The author scores in medical literature by referring to the glands of internal secretion as the carburetors of the body economy. It may be too critical to indicate that some recent developments in this field have not been emphasized; namely, cortin, the rôle of the female sex hormone in the treatment of hemophilia, and the effect of pituitary extracts on the growth of hair.

A Study of Dental Clinics in the United States: 1930. By Miriam Simons Leuck, of the Research Staff of the Committee on the Study of Dental Practice of the American Dental Association. Statistical Adviser: Charles A. R. Wardwell, Assistant Professor of Statistics and Finance, Northwestern University. Publications of the Committee on the Study of Dental Practice of the American Dental Association, No. 3. Paper. Pp. 107. Chicago: University of Chicago Press, 1932.

Various studies have been made of dental clinics and their relations to specific localities or individual clinics, but it appears that this study is the first attempt to assemble widespread information. Under the study are included such topics as the number of clinics, their geographic distribution, number of patients served, number of visits made by patients to clinics, the amount of fundamental equipment devoted to clinic work, and the number of dentists engaged in this type of service. There is found also a classification of the types of clientele served. Of considerable importance in understanding the scope of interest in dental care that has spread outside the dental profession is an enumeration and discussion of the agencies that direct dental clinics.

In this study, reports were made on 1,530 clinics. This number included at least one from every state in the United States, with an average of over two clinics for each city reporting. In 1930 the reports showed that at least 1,962,791 patients were treated in dental clinics. The extent of dental clinic service is further shown by the fact that 3,314 chairs are reported as being devoted to this service. It was stated that 28 individuals out of every 1,000 living in cities received dental clinic treatment during 1930, the year covered by the study. The smallest of these clinics served only 4 to 10 patients during the year, but several reported an attendance of over 75,000 patients and one clinic reported a service to 110,000 in 1930.

The relative importance of the different classes of agencies conducting dental clinics is shown by the following figures: The number of clinics conducted by local and county governments is 469; by hospitals, 378; by federal and state governments, 270; by lay and charitable organizations, 200; by dental schools and societies, 137; and by industries and business firms, 76. Information is not complete on the number of dentists connected with the full number of 1,530 clinics reporting; however, some 400 or more clinics volunteered information on this point. In these clinics there were reported 207 full time dentists, 515 part time dentists, and 11 dental interns. Almost half of the clinics (48 per cent) confined their work exclusively to children. Over 16 per cent reported that their service was maintained for adults only, while over 33 per cent maintained a service for both adults and children. The patients, classified according to age, consisted of 1,006,918, or over 62 per cent, children and 596,956, or more than 37 per cent, of adults. It was impossible in the study to make a detailed analysis of the services rendered, the class of patients admitted, charges made and the salaries paid the operator. These items, together with the social problems involved, are to be presented in a report of a further study.

The study is accompanied by a number of significant tables in both the text and the appendixes. Although it appears that the author anticipates a more extensive report, the material presented is sufficient to show that there exists in the United States today a widespread interest in dental clinics both among the members of the dental profession and among organizations interested in public health. There is likewise an evidence of interest on the part of the public, which is shown by the extent to which these clinic facilities have been utilized.

Pathologie und Therapie der Erkrankungen des Kehlkopfes, der Luftröhre und der Bronchien. Von Prof. Dr. M. Hajek, Vorstand der Universitätsklinik für Kehlkopf-, Nasen- und Ohrenkrankheiten in Wien. Abteilung 1. Paper. Price, 53 marks. Pp. 192, with illustrations. Leipzig: Curt Kabitzsch, 1932.

This is the first section of what promises to be a complete treatise on the pathology and treatment of the diseases of the larynx, trachea and bronchial system, and it deals with these subjects in a beautiful manner. In the first chapter, the anatomy of the larynx, trachea and bronchial tubes is discussed, followed by the second chapter on the physiology of the larynx and airways. The third chapter deals with the various methods of indirect and direct examination (endoscopy), with much attention to the proper instrumentation. The fourth chapter presents the pathology of the upper air passages, including anemia, acute and chronic catarrhal inflammation of the laryngeal, tracheal and faucial mucosa, laryngeal edema, acute laryngitis and perichondritis. There is a good discussion of some of the acute infectious diseases which involve the larynx and the air passages, including such diseases as scarlatina, measles, smallpox and diphtheria. The volume ends abruptly in the middle of a sentence in the portion in which diphtheria is being discussed. It is hoped that the other two sections of this subject will soon appear, so that the complete story can be presented. The part thus far published is well illustrated with black as well as colored drawings and figures. This work should prove most valuable to the library of the laryngologist, especially to the man interested in endoscopy in all its phases.

A Practice of Medicine. By Prof. Adolf Strümpell. Volume I: Infectious Diseases. Diseases of the Respiratory and Circulatory Systems. Volume II: Diseases of the Digestive and Urinary Systems. Diseases of the Organs of Motion. Diseases of Metabolism. Volume III: Diseases of the Nervous System. Authorised translation from the thirtieth German edition by C. F. Marshall, M.Sc., M.D., F.R.C.S., and C. M. Ottley, M.A., B.M., F.R.C.S. Twenty-ninth and thirtieth editions by E. Seyfarth, D.Med. et Phil., Professor of Medicine at the University of Leipzig. Fabrikoid. Price, $33 per set. Pp. 2356, with 392 illustrations. Philadelphia: F. A. Davis Company, 1931.

Since this work was first published, in 1883, it has been in constant demand and has been translanted into seven different languages. At the death of the author, in 1925, Professor Seyfarth of Leipzig undertook the revision of the book. He has maintained the original arrangement of the text as well as the emphasis on the clinical aspect of disease. Strümpell was prominent as a clinician and throughout his previous editions he emphasized the importance of clinical study and observation and the correlation of external symptoms with internal pathologic conditions. In this edition Dr. Seyfarth has attempted to maintain the ideals of Strümpell and has not overstepped the limits of a practical textbook of medicine. Many new therapeutic and diagnostic measures have been introduced since the last edition of the book, but the author has included only those which he himself has tested and found useful. The first volume consists of chapters on the acute infectious diseases, special infectious diseases, and diseases of the cardiovascular and respiratory systems. In keeping with the thought expressed by the author in the preface, he has not included any form of treatment unless its usefulness has been firmly established. The definite success that has attended the use of diphtheria toxoid in the prophylaxis of diphtheria merits more than casual mention, however. In the chapters on diseases of the respiratory and cardiovascular system, the clinical aspect is clearly and concisely .correlated with the underlying pathologic condition wherever possible. The second volume is devoted to diseases of the digestive and urinary systems, blood, endocrine glands and disorders of metabolism. Before discussing the subject of nephritis, the author has included a general discussion on renal disease in an effort to clarify some of the points which tend to make this subject confusing to the general practitioner. The chapter on blood is unusually complete for a treatise of this type. The third volume deals with the diseases of the brain and nervous system. This part of the work is excellent. The subjects are covered with almost the same thoroughness as in a textbook on neurology, and yet the facts are concise and readily available to those who are not specially trained in diseases of the nervous system. The general practitioner will find these volumes a reliable and conservative textbook of medicine. The style of the book is of such nature that it will serve as a readily available source of practical clinical information and a guide to the peculiarities of individual cases.

Über das elektrische Schneiden mit der Drahtschlinge in der operativen Dermatotherapie und kleinen Chirurgie unter besonderer Berücksichtigung der Hauttuberkulose. Von Dr. med. Vinzenz Wucherpfennig, Priv.-Doz., Ass.-Arzt der Univ.-Haut-klinik Münster (Westf.). Mit einem Geleitwort von Professor Dr. A. Stühmer, Direktor der Univ.-Hautklinik Münster (Westf.). Paper. Price, 7 marks. Pp. 84, with 82 illustrations. Jena: Gustav Fischer, 1932.

This is a monograph based on four years' experience with electrosurgery with the wire loop. There is an introductory chapter on the historical development of the various types of electrical cutting procedures. In the second chapter the theoretical and practical application of the cutting current is taken up in detail and three types of incisions with a specially constructed wire loop are described under the titles of "Hohlschnitt," "Flachschnitt" and "Spaltschnitt." The questions of hemostasis, anesthesia and after-treatment are adequately discussed. The author's preference is for healing of even large defects by granulation rather than by skin grafting or tissue transplantation. The main application of this method of electrosurgery is found in the field of cutaneous tuberculosis, although it is also used for biopsy, skin cancer, nevi, verruca, senile keratoses and the excision of x-ray ulcers and carcinomas. Of 654 cases treated by the author, 452 were cases of tuberculosis cutis. The cosmetic results in this disease are naturally of the greatest importance in addition to the time factor, as it is well known that the modern dietetic and actinic treatment of cutaneous tuberculosis is a slow and time-consuming procedure. A careful study of the illustrations showing the end-results of the treatment would lead one to the conclusion that this method causes an excessive amount of scarring and that the cosmetic results cannot compare with those of modern Finsen therapy. The main advantage seems to be found in the saving of time, the saving of expense and possibly a diminished frequency of recurrence in the scar tissue. It is apparent that this method of electrical surgery should not be undertaken lightly or without special training in the various methods of procedure.

The History of Paediatrics: The Progress of the Study of Diseases of Children up to the End of the XVIIIth Century. By George Frederic Still, M.A., M.D., Hon. LL.D., Professor of Diseases of Children, King's College, London. Cloth. Price, $8. Pp. 526, with illustrations. New York: Oxford University Press, 1931.

Those who are interested in pediatrics or the history of the development of this specialty will find in this volume delightful and instructive reading. It is the first work of its kind by an Englishman, and much of it is particularly devoted to the development of pediatrics in England. The material presented consists largely of thumbnail biographic sketches set forth in the author's usual delightful style. A scientific accuracy and terseness permeates the book. The subject matter is chronologically organized and spans the period from Hippocrates through the eighteenth century. A great deal of original research work has been done in collecting and assembling known and heretofore unknown data. As source material the author has liberally drawn from early inaugural dissertations. A bibliography of these in the appendix lends additional value to the book. The text is richly illustrated by well chosen reproductions of early medical editions dealing with the care and treatment of infants and children. There are also numerous reproductions of fine old portraits, all of which constitute a fairly comprehensive collection of pediatric pioneers. The biographic nature of the book recommends it as a ready reference volume. Its simplicity, continuity and charming style merit it a prominent place among the contributions to medical history.

Tuberculosis in South African Natives With Special Reference to the Disease Amongst the Mine Labourers on the Witwatersrand. Being the Report of the Tuberculosis Research Committee, Originally Established by the Transvaal Chamber of Mines and Later Expanded Into a Joint Committee by Incorporation of Representatives of the Union Government. Publications of the South African Institute for Medical Research, Volume V, No. 30. Edited by the Director. Paper. Pp. 429, with illustrations. Johannesburg: South African Institute for Medical Research, 1932.

This elaborate report will interest all who are concerned actively in the study and prevention of tuberculosis. It shows strikingly the magnitude, complexity and difficulties of the tuberculosis problem in South Africa. Here the disease flourishes in the manner more or less characteristic of its manifestations on "virgin soil." From isolated, often distant, native communities are recruited large numbers of laborers for work, mostly underground, in the mines on the Witwatersrand. Above ground the miners live in crowded and insanitary compounds. The term of the mine labor usually is one year. The number of hours underground each day is at least ten, with little or no chance for food or rest in the meantime. It is consequently no wonder that active tuberculosis develops in large numbers of the workers, most of whom carry the disease back to their home communities on repatriation after their term is over. The report describes the condition both of the mines and of the home life of the natives and offers a series of well founded and constructive recommendations for reducing the sources of infection and increasing the resistance. The lack of adequate statistics concerning the native population as a basis for assessing the value of health work is emphasized. The usefulness of the report would have been increased by an index.

Will It Be a Boy? Sex-Determination According to Superstition and to Science. By Dr. F. Økland, Assistant Professor, Aas, Norway. Cloth. Price, $1.50. Pp. 116, with 14 illustrations. New York: Century Company, 1932.

This book was written for laymen. In simple language the author explains the known facts of sex determination not only in human beings but also and in greater detail among the lower animals. The first part of the book contains a discussion of a few superstitions concerning the determination and the wilful control of the sex of offspring.

Medicolegal

Pharmacists: Liability for Quality of Drugs Sold.—A druggist, under section 5813 of Mason's Minnesota Statutes, 1927, is responsible for the quality of all drugs, chemicals and medicine sold by him, except proprietary medicines and other articles sold in the original packages of the manufacturer. In the opinion of the Supreme Court of Minnesota, this section was not enacted to relieve druggists of responsibility but was enacted for the additional protection of the public. At common law, a druggist is bound to exercise toward his patrons that degree of care which is commensurate with the hazards and dangers to which they are exposed. Only as to the quality of nonproprietary medicines has the statute undertaken to define the responsibility of the vender. In other respects and as to proprietary medicines, the law requires the same degree of care that was required at common law. In connection with the sale of proprietary medicine in original packages, the druggist is not required to analyze the medicine or drug, when sold for the purpose for which compounded, and if the manufacturer is a reputable one the druggist may rely under ordinary circumstances on the rectitude of the manufacturer and the correctness of his compound. Ordinary care under such circumstances does not require a greater degree of diligence. But when a druggist obtains from a manufacturer drugs which he does not sell under the name of the manufacturer, but under his own name, accompanied by a statement that it was manufactured or prepared for him, the druggist assumes a responsibility equivalent to that of the manufacturer of the drugs. The word "proprietary," as applied to medicines, necessarily implies that the medicine has been compounded by a manufacturer who prepared the medicine according to his own formula, though probably it is not necessary that the formula be the exclusive property of the maker or that the process be secret. A medicine cannot be considered "proprietary" unless the original package in which it is contained bears the name of the manufacturer. If it does not, it comes within the rule applied to other medicines and drugs sold by a druggist, for the quality of which the statute holds him responsible.—*Tiedje v. Haney (Minn.), 239 N. W. 611.*

Workmen's Compensation Acts: Lead Poisoning an Accident.—Ramsay was engaged in welding the edges of sheets of lead lining large tanks and cells. After having been so engaged for about four weeks, he manifested symptoms of lead poisoning. He had had no experience and had no information as to the danger of his work and did not knowingly submit himself to its hazards. His employer was equally ignorant, and if he had realized the hazards of the task, he would have furnished his employee with a respirator or mask, which he did not do. The evidence showed that the oxides of lead absorbed into the employee's body brought about a result in a few weeks which, according to the testimony of medical witnesses, would usually take a period of months or possibly years to produce and which was not the customary or natural result that follows the absorption of lead oxide into the system. In the shortness of the time within which disability resulted lies the distinction between an occupational disease and an injury by accident. If the injury was the result of lead poisoning, under the peculiar circumstances of this case, said the Supreme Court of Idaho, we are of the opinion that it was a personal injury by accident arising out of and in the course of employment, within the meaning of the workmen's compensation acts, and that it was therefore compensable.—*Ramsay v. Sullivan Mining Co. (Idaho), 6 P. (2d) 856.*

Revocation of Physician's License: Necessity for Notice of Hearing.—Before a license to practice medicine in Florida can legally be revoked, a copy of the charges on which it is proposed to take action and a notice of the time and place when and where they will be heard by the board of medical examiners must be served on the licentiate. If a license is revoked, the licentiate may have the proceedings of the board reviewed by certiorari to the appropriate circuit court (Compiled Laws of Florida, 1927, section 3415). In this case, charges against a physician were filed with the board and a time and place for a hearing were fixed, but no copy of the charges nor notice of the time and place of hearing was served. At the time and place appointed the board peremptorily revoked the license without affording the licentiate a chance to defend. He thereafter sought a writ of mandamus to compel the board to reinstate his license. The board contended, however, that the writ of mandamus did not lie, because the medical practice act provided a complete and adequate remedy through a writ of certiorari. But, said the Supreme Court of Florida, the statute relied on by the board provides a complete and adequate remedy, other than mandamus, only for a licentiate whose license has been revoked after compliance with its terms. In the statute certain fundamental rights of an accused licentiate are set out. Their observance is mandatory, but in this case they were ignored by the board. The license was revoked in this case in a manner contrary to the spirit of our institutions and directly opposed to the letter of the law governing such revocation. There is, therefore, *nothing for the circuit court* to review on which it could predicate its judgment. The aggrieved physician in this case is entitled to have his license reinstated as prayed for in the writ, subject to proper proceedings under the statute.—*State ex rel. Tullidge v. Hollingsworth (Fla.), 138 So. 372.*

Evidence: Use of Mortality Tables.—When injuries which are the basis of actions for damages amount to permanent incapacity, mortality tables are commonly used to assist the jury in estimating the plaintiff's expectancy of life and in determining the probable duration of incapacity. Such tables give only the average of a large number of lives; in the individual case the expectancy may be higher or lower than the average. According to the Supreme Court of Errors of Connecticut, while mortality tables are generally held to be admissible, they are not conclusive. They are not the only evidence admissible in proof of expectancy of life; the jury may determine this from other evidence, such as evidence of the age, health, habits and physical condition.—*Donoghue v. Smith (Conn.), 157 Atl. 415.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Montreal, Sept. 19-23. Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Neb., Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, French Lick, Indiana, Sept. 12-14. Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American Congress of Physical Therapy, New York, Sept. 6-10. Dr. F. B. Balmer, 185 North Wabash Avenue, Chicago, Secretary.

American Hospital Association, Detroit, Sept. 12-16. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Detroit, September 28-30. Dr. C. C. Vinton, 585 West End Avenue, New York, Secretary.

American Roentgen Ray Society, Detroit, September 27-30. Dr. Eugene P. Pendergrass, 3400 Spruce Street, Philadelphia, Secretary.

Colorado State Medical Society, Estes Park, Sept. 8-10. Mr. Harvey T. Sethman, 227 16th Street, Denver, Executive Secretary.

Delaware, Medical Society of, Lewes, September 27-28. Dr. W. O. La Motte, 604 Medical Arts Building, Wilmington, Secretary.

Idaho State Medical Association, Pocatello, Sept. 16-17. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, Michigan City, September 27-29. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Louisville, October 3-6. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Kalamazoo, Sept. 13-15. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Nevada State Medical Association, Reno, Sept. 23-24. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.

Oregon State Medical Society, Klamath Falls, Sept. 22-24. Dr. Albert W. Holman, 410 Taylor Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, October 3-6. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Utah State Medical Association, Ogden, Sept. 15-17. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, October 6-7. Dr. William G. Ricker, 31 Main Street, St. Johnsbury, Secretary.

Washington State Medical Association, Tacoma, Sept. 12-14. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-16. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

16: 439-680 (May) 1932

*Ovarian Neoplasms: Some Points in Their Pathology, Clinical Features and Treatment. W. B. Bell and M. M. Datnow.—p. 439.
*Malignant Tumors of Thymus Gland. E. H. Crosby, Albany, N. Y.—p. 461.
*Chronic Lactation Mastitis, Suppurative and Nonsuppurative: Difficulty of Distinguishing It from Cancer Clinically, at Exploratory Incision, from Its Fresh Appearance and in Microscopic Section: Analysis of Forty-Three Cases. L. C. Cohn, with Remarks by J. C. Bloodgood, Baltimore.—p. 487.
*Note on Occurrence of Herpes Zoster in Hodgkin's Disease, Lymphosarcoma, and the Leukemias. L. F. Craver and C. D. Haagensen, New York.—p. 502.
*Tumors of Maxillary Sinus. W. T. Peyton, Minneapolis.—p. 515.
Melanoma in Negro. E. L. Bishop, Atlanta, Ga.—p. 522.
Multiple Myeloma of Bone: Report of Two Cases with Remarks on Histogenesis. H. W. Williams, Providence, R. I.—p. 540.
Histologic Reaction of Muscle Tissue to Presence of Rapidly Growing Malignant Tumor. R. S. Leadingham, Atlanta, Ga.—p. 556.
Postmortem Observations of One Hundred and Fifty-Eight Cases of Carcinoma of Stomach. W. G. Harding 2d and F. D. Hankins, Los Angeles.—p. 561.
*Liver Diet and Tumor Growth. W. H. Woglom, New York.—p. 564.
*Comparative Study of Transplantability of Eight Mammary Gland Tumors Arising in Inbred Mice. A. M. Cloudman, Bar Harbor, Maine.—p. 568.
Influence of Time Factor in Irradiation of Drosophila Eggs. H. Roesler and P. S. Henshaw, New York.—p. 631.
Influence of Sex and Heredity on Development of Tar Tumors. M. C. Reinhard and C. F. Candee, Buffalo.—p. 640.
Melanoma of Caruncle: Case. V. A. Chapman, Milwaukee and Pasadena, Calif.—p. 645.
Indeterminate Lesion (Neoplasm?) in Albino Patient. E. Fischel and L. H. Jorstad, St. Louis.—p. 650.
Lymphosarcoma with Ovarian Involvement in Child. H. H. van Horn, Harrisburg, Pa.—p. 658.
Leiomyosarcoma of Cecum: Case. R. Trygstad, Brightwaters, N. Y.—p. 662.
Endothelioma of Lymph Nodes of Inguinal Region. N. P. Duany and E. Rivero, Havana, Cuba.—p. 665.

Ovarian Neoplasms.—Bell and Datnow show that in tumors of the ovary the previous history of the patient is of considerable importance, especially with respect to malignant neoplasms. The average age of patients with both innocent and malignant neoplasms, except cystic teratomas and possible sarcomas, falls between 42 and 50 years—the period of reproductive involution. A large majority of all women with ovarian neoplasms, innocent and malignant, are parous. The symptomatology is somewhat ambiguous in that menstrual disturbances may be due to associated uterine lesions rather than to the ovarian neoplasms. Abdominal pain and loss of weight, however, are important indications of malignancy. The physical sign of ascites cannot be relied on as a determining factor in the diagnosis since it is frequently present with innocent solid, and occasionally cystic, ovarian tumors. Ascites is observed only in certain well defined circumstances and is due to mechanical or chemical irritation of the peritoneum. Treatment is entirely surgical and should always be practiced in cases of innocent neoplasms. With these lesions, conservation of normal ovarian substance should be attempted in young women. Difficulties in diagnosis may sometimes deter the surgeon from acting in this manner. In parous women about or after the menopause, who form the majority of all cases, bilateral salpingo-oophorectomy with panhysterectomy should be done. If the patient is nulliparous, supravaginal hysterectomy with salpingo-oophorectomy is sufficient. In young parous women the removal of ovarian cysts by the vaginal route may be done with advantage. If laparotomy is performed, the tumor should be removed without preliminary tapping or puncture. The treatment of malignant neoplasms is curative or palliative. Lead therapy is often a useful adjunct to surgical procedures. Radiotherapy is not to be recommended.

Malignant Tumors of Thymus.—Crosby presents a typical case of thymic lymphocytoma in which the diagnosis was made at necropsy. The acute onset of symptoms and the rapidly fatal termination of the disease made diagnosis difficult and treatment futile. When such cases are seen early, roentgen therapy offers an excellent prognosis and even the hope of complete recovery. A discussion of the clinical course of malignant tumors of the thymus and a review of the physical signs, including the typical roentgen shadow, indicate that diagnosis can often be made early, and in early diagnosis and roentgen treatment lies the only hope for the patient. The author found 165 cases of malignant disease of the thymus in the literature, which, with the case he presents, make a total of 166 cases. Of these, 122 were sarcomas, so called, and 44 carcinomas.

Chronic Lactation Mastitis.—Cohn emphasizes the fact that mastitis is not always a clinical entity. It sometimes masquerades as cancer, while cancer may masquerade as mastitis. A palpable mass in the breast is said to be of the mastitis type if it feels like the caked breast of the nursing woman. If such a mass is associated with lactation and accompanied by fever and leukocytosis, exploration is indicated, on the diagnosis of acute lactation mastitis. In the absence of these cardinal signs, such masses have been observed in advanced carcinoma, comedo-adenoma with or without carcinoma, chronic lactation mastitis, chronic diffuse traumatic mastitis, tuberculous mastitis, and two types of chronic cystic mastitis—the shotty breast and diffuse dilatation of the ducts with mastitis. In studying sections of mastitis cases not associated with lactation, the author has been unable to find any case of acute or chronic mastitis, except in association with cancer, tuberculosis, diffuse dilatation of the ducts in chronic cystic mastitis, following trauma with a needle, or in association with hematoma after injury. It would seem, therefore, that mastitis is periductal or periacinal and is associated with dilatation of the ducts in chronic cystic mastitis, with lactation hypertrophy, or with trauma, tuberculosis or cancer. In chronic lactation mastitis the tumor begins as an area of induration. When explored early, it is found to be a solid, nonencapsulated area firmer than the surrounding breast tissue. If exploration is delayed, the induration disappears spontaneously, goes on to suppuration, or remains as a residual tumor. Chronic lactation mastitis is characterized microscopically by evidence of lactation hypertrophy (varying from the fully developed lobule of lactation to small areas of residual lactation hypertrophy) associated with infection. Microscopically, lactation hypertrophy has frequently been interpreted as carcinoma. It must be differentiated, also, from the pseudolactation hypertrophy sometimes seen in carcinoma. The infection may be simply an area of chronic inflammation in which small lymphocytes predominate, or there may be an abscess varying in size from one visible only under the microscope to the large abscess in which fluctuation can be elicited. Areas of residual lactation hypertrophy may be present in a breast many years after lactation. A tumor may follow a lactation mastitis immediately or may appear some time later. The longest interval in the author's series between lactation and the appearance of a tumor showing lactation hypertrophy was fourteen years.

Occurrence of Herpes Zoster in Hodgkin's Disease.—Craver and Haagensen report seven cases of secondary herpes zoster that were observed among 329 cases of lymphosarcoma, Hodgkin's disease and leukemia. On the basis of the clinical data it can be said only that these cases suggest that herpes zoster was due to the involvement of nervous structures by the tumor process. This relationship was most apparent in four cases in which herpes zoster developed at or near the same time that a focus of the neoplastic disease appeared on the same side of the body and in the same general anatomic region. The authors believe that the development of herpes zoster should suggest to the clinician the possibility of an underlying lymphosarcoma, Hodgkin's disease or leukemia.

Tumors of Maxillary Sinus.—Peyton calls attention to the fact that cancer of the antrum constitutes approximately 1 per cent of all cancer. Surgery alone, total excision of the maxilla, carries a high mortality (15 to 40 per cent) and results in few if any permanent cures. The author believes that with proper combination of surgery and radium five-year cures may be obtained in 10 per cent of all cancers of the antrum coming for treatment.

Liver Diet and Tumor Growth.—Woglom reports that, contrary to the results obtained by other investigators, the daily feeding of some 10 Gm. of fresh uncooked beef liver to each rat bearing sarcoma 8, 10, 39 or the Flexner-Jobling carcinoma had no demonstrable effect on the growth of any of these four tumor strains in 276 animals of a line employed at the Crocker Institute.

Transplantability of Mammary Tumors.—The carcinomas employed by Cloudman in his investigation occurred spontaneously in the mammary glands of females from the highly inbred A stock from Strong's laboratory, and their growth after transplantation was primarily dependent on susceptibility factors carried by the individuals of the A stock and transmitted by them into their hybrids. These tumors appear to need but few susceptibility factors for their continued growth after transplantation when compared with the experience of investigators who have used tumors of hybrid or of unknown genetic type. The histologic structure of these carcinomas does not indicate their degree of malignancy. The author verified the multiple factor hypothesis as the explanation of susceptibility to implanted tumors and demonstrated that the use of genetically controlled stocks is of major importance in detecting and analyzing the physiologic characteristics of transplanted tumors.

American Journal of Diseases of Children, Chicago

43: 1051-1292 (May) 1932—Part I

*Glycemia in Cachexia of Nurslings. E. Jaso, Madrid, Spain.—p. 1051

*Human Milk Studies: X. Daily and Monthly Variations in Milk Components as Observed in Two Successive Lactation Periods. Betty Nims, Icie G. Macy, Helen A. Hunscher and Minerva Brown, Detroit. —p. 1062.

*Levinson Test in Tuberculous Meningitis. M. Gleich, with technical assistance of A. Hartstein, New York.—p. 1077.

*Symptoms in Congenital Lesions of Heart that Permit Venous Shunting. C. B. Leech, Providence, R. I.—p. 1086.

Acid-Base Metabolism of Normal Child on Diets that Increase in Fat Content. C. A. Weymuller and Sarah Ratner, Brooklyn.—p. 1092.

Infantile Diarrhea: Preliminary Report. M. W. Poole and T. B. Cooley, with technical assistance of Lucia Ellwart, Detroit.—p. 1101.

*Disturbances of Growth in Chronic Arthritis in Children. J. G. Kuhns and L. T. Swaim, Boston.—p. 1118.

43: 1293-1432 (May) 1932—Part II

Celiac Diseases: Rachford Memorial Lectures. L. G. Parsons, Birmingham, England.—p. 1293.

Physical Growth of Boys: Study by Means of Water Displacement. D. E. Zook, Chicago.—p. 1347.

Glycemia in Cachexia of Nurslings.—Jaso presents experimental data showing that in simple nutritional cachexias the blood sugar value is, on an average, 43 per cent lower than normal. The intensity of the hypoglycemia is in proportion to the denutrition. The presence of hypoglycemia was not confirmed in dystrophies of specific cause (syphilis, tuberculosis). The blood sugar remains within normal limits in hypothreptic infants in whose diet cereals are included. It returns to its normal value when the patient with athrepsia is progressing toward recovery. The blood sugar of nurslings can fall as low as 0.3 mg. per thousand cubic centimeters without clinical signs of hypoglycemia.

Human Milk Studies.—Under controlled methods of milk expression, sampling and analysis, Nims and her associates made extensive observations on three lactating women, two during two successive lactations of fourteen months' duration and a third during a single lactation period of similar duration. Observations were made also on another group of women during the earlier months of lactation. The nitrogen content of the milk decreased rapidly up to the sixth month and then remained fairly constant; the concentration of total ash and calcium decreased gradually; the phosphorus diminished gradually until the later months, when an increase occurred; the fat and total solids also decreased during the earlier months of lactation and then regained high values in late lactation. The data demonstrate that the various milk components, although varying from day to day and changing during lactation, fluctuate about a level that is characteristic for the individual woman, and that this individuality of fluctuation is maintained not only during one lactation but also through successive lactation periods. Over and above these individual trends in fluctuation, the composition of the milk in all three subjects showed a similar trend of changes as lactation progressed.

Levinson Test.—According to Gleich, the Levinson test is done thus: One cubic centimeter of spinal fluid is placed in each of the two test tubes 8 mm. in diameter. To one is added 1 cc. of a 1 per cent solution of mercuric chloride and, to the other, 1 cc. of a 3 per cent solution of sulphosalicylic acid. The tubes are well shaken, stoppered and allowed to stand at room temperature for forty-eight hours. At the end of twenty-four and forty-eight hours the column of precipitate in each tube is measured in millimeters. When the height of the precipitate in the first test tube is seen to be twice that of the precipitate in the second tube, the result of the test is positive. On the basis of his experience with the test in a large number of cases of tuberculous meningitis and other intracranial conditions, the author considers that the Levinson test is of value. Days before tubercle bacilli were found in the spinal fluid, if at all, or necropsies helped to confirm the diagnosis, the Levinson test was positive. In all the cases of tuberculous meningitis, the test was positive. In these cases the finding of tubercle bacilli or necropsy confirmed the reliability of the Levinson test. However, the test is corroborative and one should consider it together with the history, physical observations and clinical data in making a diagnosis.

Congenital Lesions of Heart.—The clinical records of sixty-two patients with congenital heart lesions, revealed at necropsy, of such a nature as to permit venous shunting, were studied by Leech in an attempt to determine the presence or absence of characteristic symptoms and signs. Nearly half of these patients did not present any clinical abnormalities referable to the circulatory apparatus. While the incidence of cyanosis, periodic as well as constant, was found to be somewhat higher in this group than among twenty other patients whose necropsies revealed congenital defects of the heart that did not permit venous shunting, this sign was found not to differentiate sufficiently the two general types of lesions. Eight (13 per cent, approximately) of the large group presented a syndrome that was almost totally absent in the smaller group with the nonvenous shunt type of defect. In the larger group, five additional patients presented convulsive seizures not accompanied by cyanosis and respiratory distress. In conclusion, the author states that when other causes, such as pneumonia, epilepsy, meningitis and severely toxic conditions, can be ruled out and when the patient is known to have congenital heart disease, the occurrence of convulsion-like seizures, often epileptiform in character, sometimes followed by drowsiness and frequently accompanied by hyperpnea, may justly be interpreted as an indication of a lesion, or a combination of lesions, that permits venous shunting, especially if the patient shows a constant cyanosis, no matter how slight, or if the attack is accompanied by a deep cyanosis.

Chronic Arthritis in Children.—Kuhns and Swaim call attention to the fact that disturbances in growth are not uncommon in chronic arthritis in children. Such disturbances may appear only after several years of the disease and are found oftenest in children with poor health and resistance. These disturbances, while they are influenced by nonuse of the body and by nutritional and endocrine dysfunction, are due chiefly to the involvement of the proliferating epiphyseal cartilages, resulting in early ossification. They are dependent on the severity and chance location of the arthritis. There are three general types of disturbances in growth in chronic arthritis. The commonest of these is the persistence of infantile proportions in the hands and feet. Shortness of an extremity or a portion of an extremity, or symmetrical shortening of two limbs, is fairly common. Dwarfism is relatively rare but occurs in cases of severe generalized arthritic involvement. The prevention and cure of these disturbances rest, first, on general measures to combat the disease in its early stage and to improve the general condition of the patient as rapidly as possible, and, secondly, on local measures to improve the function of the extremities and to promote circulation. The authors believe that every child with chronic arthritis should be observed at regular intervals for at least five years after the disease is quiescent.

American Journal of Orthopsychiatry, Menasha, Wis.

2: 103-195 (April) 1932

Psychiatric Concepts of Early Greek Philosophers. Augusta F. Bronner, Boston.—p. 103.
Psychiatric Factors in Stealing. H. M. Tiebout and M. E. Kirkpatrick, New York.—p. 114.
Social-Situation Pictures in Psychiatric Interview. L. A. Schwartz, Detroit.—p. 124.
*Emotional Problems in Children as Related to Duration of Breast Feeding in Infancy. A. T. Childers and B. M. Hamil, Detroit.—p. 134.
Study of Twenty-Five Children Presenting the Withdrawal Type of Personality. S. W. Hartwell, Worcester, Mass.—p. 143.
Some Aspects of Treatment by Psychiatrist and Psychiatric Social Worker. Marjorie Stauffer, New York.—p. 152.
Autobiography as Psychiatric Technic. L. S. Selling, Chicago.—p. 162.

Emotional Problems Related to Breast Feeding.—Childers and Hamil reviewed the social histories of 469 children under 13 years of age referred to the Neuro-Psychiatric Clinic of Harper Hospital, Detroit, and tabulated objectionable behavior manifestations. The various symptoms of behavior, calculated in percentage of frequency of occurrence, were plotted in a curve for the entire number, and these items in the same order were in similar manner plotted for four groups into which the 469 cases were divided. The graphs seem to show that undesirable behavior manifestations are generally greater among those children who were weaned between the first and sixth months of infancy. Those children who were never breast fed have the next greatest percentage frequency of such manifestations. The group in which breast feeding was continued into the "normal" period for weaning reveals a smaller percentage of undesirable conduct manifestations than the two foregoing groups. The group in which breast feeding was prolonged beyond the eleventh month shows the smallest percentages of undesirable behavior traits but the difference between this and the immediate foregoing group is not marked. The children who were weaned between the first and fifth months show the highest percentage of abnormal behavior manifestations. The explanation assumed for this group being so involved is that these children, becoming adapted to breast feeding and then being called on to adjust to bottle feeding, had certain emotional conditionings to which the other groups were not subjected in so great a degree.

American Journal of Pathology, Boston

8: 263-365 (May) 1932

Osteitis Fibrosa. F. J. Lang, Innsbruck, Austria.—p. 263.
Vaccinal Infection of Chorio-Allantoic Membrane of Chick Embryo. E. W. Goodpasture, Alice M. Woodruff and G. J. Buddingh, Nashville, Tenn.—p. 271.
*Subcutaneous Nodules in Chronic Arthritis: Clinical, Pathologic and Bacteriologic Studies. B. J. Clawson and M. Wetherby, Minneapolis.—p. 283.
Method for Progressive Selective Staining of Nissl and Nuclear Substance in Nerve Cells. L. Einarson.—p. 295.
Concerning the Histology of Melanoma. N. C. Foot, Cincinnati.—p. 309.
Id.: II. With Especial Consideration as to Nervous Elements of Tumor. N. C. Foot, Cincinnati.—p. 321.
Histochemical Studies by Micro-Incineration of Normal and Neoplastic Tissues. G. H. Scott and E. S. Horning, Chicago.—p. 329.
Multiple Papillomas of Larynx with Aerial Metastases to Lungs: Case. H. B. Hitz and E. Oesterlin, Milwaukee.—p. 333.
Lumbosacral Teratoma Associated with Spina Bifida Occulta: Report of Case with Review of Literature. P. C. Bucy and H. E. Haymond, Chicago.—p. 339.
Micrococcus Pharyngis Siccus Endocarditis. I. Graef, C. E. de la Chapelle and Margaret C. Vance, New York.—p. 347.
*Effect of Radium Emanation on Histocyte in Liver of White Rat. G. M. Higgins and J. C. T. Rogers, Rochester, Minn.—p. 355.

Subcutaneous Nodules in Chronic Arthritis.—Clawson and Wetherby studied 200 patients having chronic arthritis, to determine the frequency of subcutaneous nodules in this disease. Nodules varying in diameter from 5 mm. to 3 cm., and in number from one to several per patient, were found in 29.5 per cent of the cases. Structurally these nodules seemed to be similar to those found in acute rheumatic fever and to those produced in animals by injecting streptococci. They tended to be larger in chronic arthritis. The microscopic structure was chiefly polyblastic in character, but small areas of necrosis and abscess formation were commonly seen. When these nodules were macerated under sterile conditions and cultures taken in beef infusion dextrose broth, diplococci morphologically and culturally similar to those commonly found in the blood of patients having acute rheumatic fever or chronic arthritis were isolated in 70.6 per cent of the cases. The frequency of the subcutaneous nodules in acute rheumatic fever and chronic arthritis, the similarity of the gross and microscopic structure of the nodules in these two conditions and in experimental streptococcic nodules, and the frequency with which streptococci are yielded by cultures from the blood in acute rheumatic fever and from the blood and nodules in chronic arthritis, strongly suggest that acute rheumatic fever and chronic arthritis for the most part have a common streptococcic etiology and that the two diseases are in all probability different manifestations of the same process.

Radon and Histocyte in Liver of Rat.—Higgins and Rogers report the results of a study of the reaction of the histocytes in the liver to radon, as contained in gold radon seeds. Similar but inactive gold seeds were used in a series of control animals to determine the local reaction to such foreign bodies. All local histocytes within the vicinity of the inactive gold seed responded immediately to the foreign body by retracting their processes, desquamating into the sinusoids or migrating into adjacent parenchyma. Their function as littoral histocytes had apparently ceased and they were not concerned in an attack on the foreign body. Seventy-two hours after insertion of the inactive seed into the parenchyma, an effective barrier had been formed around it by these actively migrating histocytes. Subsequently these cells contributed toward the formation of connective tissue. All histocytes in the vicinity of the active radon seed were as susceptible to the emanation as the cells of the parenchyma. The extent of the destruction by the radon increased until the maximal injury was reached about the thirty-fifth day. Histocytes within the zone of injury were destroyed, and those immediately beyond did not manifest signs of restorative activity during this period. After the fifth week, however, a retarded restorative activity was manifested by the histocytes just peripheral to the zone of maximal injury. By the tenth or twelfth week these cells considerably remote from the radon seed, and which either had not been affected or only slightly affected by the radon, migrated rapidly toward the seed and contributed toward the formation of a wall comparable to that seen three days after the implantation of the control seed.

American Journal of Physiology, Baltimore

100: 447-722 (May) 1932. Partial Index

Vagal Depression of Turtle Atrium: Study of Integration of Effect of Nerve Impulses. A. S. Gilson, Jr., St. Louis.—p. 459.
Studies on Physiology of Sleep: VI. Behavior of Decorticated Dogs. N. Kleitman and N. Camille, Chicago.—p. 474.
*Studies at High Altitude: Blood Observations on Indian Natives of Peruvian Andes. A. Hurtado, Rochester, N. Y.—p. 487.
Changes in Muscle Glycogen Accompanying Physical Training. H. A. Procter and C. H. Best, Toronto, Canada.—p. 506.
Functional Analysis of Cervical Sympathetic Nerve Supply to Eye. G. H. Bishop and P. Heinbecker, St. Louis.—p. 519.
Mechanism of Certain Ovarian Hormonal Influences on Central Nervous System. R. Y. Herren and H. O. Haterius, New York.—p. 533.
Action of Ovary, Stimulating Substance of Human Urine of Pregnancy on Uterine Motility of Unanesthetized Rabbit. S. R. M. Reynolds, Baltimore.—p. 545.
*Excretion of Estrin by Women. G. van S. Smith and O. W. Smith, Brookline, Mass.—p. 553.
Reflex Salivary Response in Dehydration (Limited Water Intake, Hyperthyroidism). L. E. Barron, Chicago.—p. 559.
Inquiry into Basis of Acetylene Method of Determining Cardiac Output. W. F. Hamilton, M. C. Spradlin and H. G. Saam, Jr., Louisville, Ky.—p. 587.
Contraction and Evacuation of Gallbladder of Rabbit Produced by Cholecystokinin. E. L. Walsh, Chicago.—p. 594.
Studies on Human Blood Pressure Criteria and Methods: I. Effects of Partial and Complete Occlusion on Actual Pressures in Compressed Arteries. Alice B. Maltby and C. J. Wiggers, Cleveland.—p. 604.
Circulatory Changes During Hyperthermia Produced by Short Radio Waves (Radiothermia). C. J. Wiggers and O. Orias, Cleveland.—p. 614.
Dynamic Changes in Ventricles Following Ligation of Ramus Descendens Anterior. O. Orias, Cleveland.—p. 629.
Physiology of Corpus Luteum: VIII. Interrelationship of Estrin and Corpus Luteum as Determined by Their Effects in Adult Rabbit. W. M. Allen, Rochester, N. Y.—p. 650.
*Physiology of Drainage of Nasal Mucus: III. Experimental Work on Accessory Sinuses. A. Hilding, Rochester, Minn.—p. 664.
Effects on Cardiac Musculature of Subthreshold Electrical Currents. A. S. Gilson, Jr., and H. B. Peugnet, St. Louis.—p. 671.
Comparative Effects on Carbohydrate Metabolism of Exhausting Motive and Emotive Responses and Exposure to Cold. H. Silvette and S. W. Britton, with technical assistance of R. F. Kline, Richmond, Va.—p. 685.

Effects of Cortico-Adrenal Extract on Carbohydrate Metabolism in Normal Animals. S. W. Britton and H. Silvette, Richmond, Va.—p. 693.

Apparent Prepotent Function of Adrenal Glands. S. W. Britton and H. Silvette, Richmond, Va.—p. 701.

Studies of Blood of Natives at High Altitude.—Hurtado presents a number of observations on certain of the blood characteristics of the Indian natives of the Peruvian Andes. The investigation was conducted at an altitude of 14,890 feet (4,532 meters) and with an average barometric pressure of 410 mm. of mercury. The subjects studied were carefully selected as normal men, and the results obtained suggest the following conclusions. 1. Observations on the erythrocyte count gave an average increase of about a million red cells per cubic millimeter over the normal value at sea level, but a considerable percentage of these natives live with a red cell count which would be considered normal at sea level. This observation indicates that an increase in the erythrocytes of the circulating blood, although the common condition, is not an essential adaptation process for normal life at high altitudes. There is no relationship between the red cell count and age or body measurements. 2. The average number of grams of hemoglobin per hundred cubic centimeters of blood has almost the same value as the normal average at sea level. In only 50 per cent of the cases was a higher result obtained. Each red cell at high altitude contains less hemoglobin, as compared with the normal erythrocyte at sea level, but the corpuscular hemoglobin is not a fixed characteristic: it varies inversely with the level of the red cell count; that is, the higher the count the less hemoglobin in each cell, and vice versa. Oxygen determinations in arterial and venous blood verify these observations and indicate that the red cell comes to the tissues with a lower oxygen content as compared with the erythrocyte at sea level. 3. There is a marked increase in the hematocrit (percentage of erythrocytes), and it is proportionally greater than the increase in the red cell count, with the result that each erythrocyte has a larger volume (as compared with the normal corpuscle at sea level). Again the corpuscular volume is not a fixed characteristic: it varies inversely with the level of the red cell count. The larger size of the erythrocyte was also confirmed by direct measurement of its diameter. 4. The diminished amount of hemoglobin in a larger corpuscle gives a lower value for the concentration of that substance in relation to the volume of the cell. Only about one fourth of the erythrocyte is saturated with hemoglobin. Equal and parallel changes in cell volume and hemoglobin, under the influence of variations in the red cell count, keep remarkably constant such concentration. There is an almost perfect inverse correlation between the hematocrit and the hemoglobin concentration in each red cell. These observations suggest that the adaptation processes to the high altitude, from the point of view of blood morphology, are to be found not primarily in red cell count and hemoglobin increases, as it has often been remarked, but rather in a fine and close correlation between cell number, volume and hemoglobin, and in the existence of a larger surface area in a given volume of blood and in the individual erythrocyte for the hemoglobin and oxygen content, factors which would favor the proper supply of this gas to the tissues, this last process being perhaps the basic and fundamental problem at high altitude.

Excretion of Estrin by Women.—The Smiths gave estrin orally to women, whose urines were followed for its excretion over a period of one or two months. Eight cases are reported, including four amenorrheic patients, three sterile women, and one normal control. The results would indicate that in women, as in rabbits, estrin is excreted only when the organism has been exposed to the action of corpus luteum. It appears possible by this means to differentiate between a persistent corpus luteum, irregular appearance or total absence of corpus luteum, and cyclic activity of the corpus luteum.

Drainage of Mucus in Accessory Sinuses.—Hilding describes an experiment in which he demonstrated that the drainage of the frontal sinus of a dog was effected by means of the movement of a lining film or web of mucin motivated by ciliary action. The film was extremely thin but of high viscosity and had sufficient tensile strength to sustain a considerable degree of traction. This traction was a very important factor in the drainage. The direction of motion was that of a flat, lateral spiral so arranged that there was but little tension from conflicting currents in the film of mucin. There was a speed gradient of fairly uniform acceleration (when numerous tests were averaged); the speed at the ostium was four to six times as great as that on the mesial wall. Several different materials were used to test the time required to raise small volumes from the deepest recess of the sinus, upward to the level of the ostium. All were moved more or less successfully, but thick, mucilaginous mucin was moved most completely and rapidly. Roughly, one or two hours was required to move out 1 cc. of thick mucin. A longer time was required to remove creamy pus, and still longer to remove watery substances. Clinical application of these facts can be made readily, if conditions in the sinuses of man are similar, as presumably they are. If bacteria gain access to a sinus and lodge in the film of mucin on the walls, they are swept out in a very short time. If a volume of fluid gains access, or a volume of secretion forms, a much longer time is required to remove it. In general, the more mucin there is in the secretion, the better it drains. Pus drains poorly on account of its physical properties. In addition it may contain toxins or other materials that destroy ciliary action.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

27: 657-800 (May) 1932

*Evaluation of Pneumoventriculography and Encephalography. A. W. Adson, Rochester, Minn.—p. 657.

*Encephalography in Children: Further Observations in Children with Fixed Lesions of Brain. R. C. Eley and E. C. Vogt, Boston.—p. 686.

*Interpretation of Roentgenograms of Pituitary Tumors: Explanations of Some Sources of Error Confusing Clinical and Roentgenologic Diagnoses. H. K. Pancoast, Philadelphia.—p. 697.

*Roentgen Observations in Chronic Progressive Bulbar Palsy. A. C. Christie. Washington, D. C.—p. 717.

*Contrast Medium Roentgenography in Thoracic Surgery. C. A. Hedblom and W. van Hazel, Chicago.—p. 720.

Mensuration of Heart and Chest in Left Postero-Anterior Oblique Position: Comparative Study: IV. Comparison of Transverse Diameters of Heart and Cardiothoracic Indexes of Chest Obtained from Postero-Anterior and Left Anterior Oblique Chest Films. W. W. Fray, Rochester, N. Y.—p. 729.

Agranulocytic Angina: Report of Effects of Irradiation in Marked Leukopenic States: Relation of Such Studies to Roentgen Treatment of Agranulocytosis. C. A. Waters and W. B. Firor, Baltimore.—p. 740.

Water Phantom Intensity Measurements of Roentgen Rays Produced by 127,000 Volts. J. L. Weatherwax and C. Robb, Philadelphia.—p. 749.

Principle of Absorption and Method of Multiple Converging Beams. A. U. Desjardins, Rochester, Minn.—p. 755.

Pneumoventriculography and Encephalography.—Adson considers ventriculography a valuable aid to differential diagnosis and localization of brain tumors. However, it should not be used indiscriminately; neither should it be substituted for thorough neurologic examination. Occasionally it may be employed to supply confirmatory evidence, or when the localizing clinical evidence is vague. It serves, also, as a therapeutic agent in avoiding unnecessary exploratory craniotomy by revealing normal ventricles or a subcortical, inaccessible tumor of the midbrain. The complications and the fatalities may be minimized by intravenous administration of hypertonic solutions, saline cathartics, and enemas, by repeated ventricular punctures, and by early exploration. Encephalography is of greatest value in the differential diagnosis and localization of arachnoiditis, posttraumatic lesions, and atrophy of the brain. Occasionally, it may be used as an aid to localization in cases in which tumor of the brain is suspected, without evidence of increased intracranial pressure. It is the author's impression that the use of encephalography is being abused, since the clinical features, often, are sufficient to make possible the diagnosis without subjecting the patient to the distressing symptoms of the procedure.

Encephalography in Children.—Eley and Vogt state that encephalography is a valuable diagnostic procedure in the study of children with fixed lesions of the brain. The information obtained warrants the dangers involved. The judicious employment of this procedure should eventually lead to a better understanding and classification of such conditions as epilepsy, feeblemindedness, and cerebral palsy occurring in children. From the encephalograms alone, however, one is unable to determine the nature of the initial etiologic agent responsible for the ultimate gross pathologic changes.

Roentgenograms of Pituitary Tumors.—According to Pancoast, roentgenologists must admit that the roentgenographic diagnosis of pituitary tumors is by no means *infallible*, even aside from the difficulties in interpretation between their effects and the deformations of the sella produced by suprasellar and metasellar growths and rarely parasellar lesions. The ophthalmologist and the neurologist will also admit that the clinical manifestations of hypophyseal adenomas are not always typical. Satisfactory explanations for the discrepancies in characteristic roentgenographic appearances and clinical phenomena of the pituitary tumors are to be found in (1) peculiarities or variations in the sella turcica, (2) variations in the location of the optic chiasm, (3) anomalies and abnormalities in the constituent parts of the circle of Willis, and (4) variations in the location of the infundibulum. All these explanations are given, as far as possible, on the basis of careful anatomic and necropsy studies, operative observations and correlation of roentgenographic appearances with clinical, operative and postmortem observations. The author describes the normal anatomic and roentgenographic appearances of the sella turcica and variations therefrom within normal limits. As the sella is the key to the diagnostic situation in so many cases of intracranial lesions in various localities, a classification on the basis of sellar changes is strongly advocated, as follows: (1) intrasellar tumors (adenomas); (2) suprasellar growths, originating either from vestigial remnants of the craniopharyngeal pouch or from other midline structures nearby; (3) parasellar lesions arising in the middle fossa near the sella and deforming the latter directly or through the agency of the internal carotid artery, and (4) metasellar tumors, deforming through the agency of a dilated third ventricle enlarged from ventricular block below it. The differential points of distinction of each group are discussed, together with the effects of certain other causes of sellar deformation.

Chronic Progressive Bulbar Palsy.—Christie believes that chronic bulbar palsy should always be thought of in cases of difficulty in swallowing when the delay is in the pharynx. Roentgen examination serves to differentiate between obstruction to the lumen and deficient muscular action of the constrictors. Neurologic examination will usually serve to differentiate further between central lesions, those of the pons and medulla, and peripheral neuritis.

Contrast Medium Roentgenography in Thoracic Surgery.—Hedblom and van Hazel call attention to the fact that there are certain types of thoracic disease in which contrast medium roentgenography is especially valuable. First among these is bronchiectasis, and second that group of long standing suppurative processes in which the whole affected portion of the lung, because of fibrosis, pleural thickening, or fluid, presents a more or less diffuse clouding and in which the physical signs are similarly masked. In some cases of these conditions the opacity is so dense that even iodized oil fails to produce a very clear contrast shadow. In most instances, however, it shows the nature of the lesion when all other methods fail. In some types of empyema and of chronic tuberculosis it is of distinct help in diagnosis.

American Journal of Tropical Medicine, Baltimore

12: 199-277 (May) 1932

Differential Diagnosis of Sprue and Pernicious Anemia. B. K. Ashford, Porto Rico, West Indies.—p. 199.
Some Infections Simulating Experimental Typhus in Guinea-Pig. E. L. Walker and Marion A. Sweeney, San Francisco.—p. 217.
*Sunstroke and Allied Conditions in United States. G. C. Shattuck and Margaret M. Hilferty, Boston.—p. 223.
Invasion of Wall of Intestine by Trichomonas Hominis. K. M. Lynch, Charleston, S. C.—p. 247.
Transfer of Yellow Fever Virus from Female to Male Aedes Aegypti. J. A. Kerr and T. B. Hayne, Lagos, Nigeria, West Africa.—p. 255.
Rôle of Solutes and Colloids in Nutrition of Anopheline Larvae: Preliminary Report. E. H. Hinman, New Orleans.—p. 263.

Sunstroke and Allied Conditions in the United States.—Shattuck and Hilferty present the results of a statistical study which shows that the higher death rates attributed to excessive heat including sunstroke are distributed with great irregularity in the United States. As a rule, the death rates were markedly higher in urban than in rural localities. This feature becomes highly pronounced in years when the deaths from heat have been notably frequent. The rates fluctuate markedly from year to year, but a slight downward trend is indicated. The average death rates by ages are relatively high during the first year of life, and very low thereafter up to the age of 20. They then begin to rise gradually. After the age of 70, the rates rise sharply. The death rate from heat effects in states having a large Negro population is 2.4 times as high for the colored as for the white. This is approximately true for both sexes. A correlation with occupation is suggested by these figures. The reporting of deaths from excessive heat in every month of the year points to industrial conditions as causative of many of these cases. Although means of evaluating the importance of suitable clothing are not available, there are indications that it is a factor which should not be overlooked.

Archives of Dermatology and Syphilology, Chicago

25: 785-986 (May) 1932

Achromia Parasitaria: Its True Nature and Etiology. V. Pardo-Castello, Havana, Cuba.—p. 785.
"La Cacomondade": The Morbus Gallicus, Two Centuries Ago. W. R. Riddell, Toronto, Canada.—p. 790.
Chemotherapeutic Studies of Acetarsone (Stovarsol). G. W. Raiziss and Marie Severac, Philadelphia.—p. 799.
*Epidermophytids as a Clinical Conception. M. Scholtz, Los Angeles.—p. 812.
Urticaria from Sensitiveness to Cold: Recovery Following Removal of Pelvic Tumor. E. Weiss, Philadelphia.—p. 823.
Reaction of Skin and Its Secretions in Eczema: I. Hydrogen Ion Concentration of Skin Surface in Eczema. O. L. Levin and S. H. Silvers, New York.—p. 825.
Influence of Viosterol Hypercalcemia on Skin Irritability of Dogs. A. G. Schoch, Dallas, Texas.—p. 835.
Local Responses to Histamine in Normal Skin, in Dermatophytosis, in Alopecia Areata and in Scleroderma. A. D. King, Philadelphia.—p. 840.
Trichophytin in Diagnosis. C. M. Williams and C. C. Carpenter, New York.—p. 847.
Perspiration: II. Absence of the Aschheim-Zondek Hormone in Pregnancy. R. L. Gilman and F. D. Weidman, Philadelphia.—p. 852.
*Acute Disseminated Lupus Erythematosus. J. F. Madden, St. Paul.—p. 854.
Normal Pigmentation in Nails of the Negro. S. Monash, New York.—p. 876.
Poikiloderma Atrophicans Vasculare, Jacobi: Report of Case with Review of Recent Literature. L. Taussig, San Francisco.—p. 882.
*Spontaneous Spirochetosis and Experimental Syphilis in Rabbits. S. M. Fried and S. S. Orlov, Moscow, U. S. S. R.—p. 893.
*Annular Macular Syphilid (Neurosyphilid, Unna). F. C. Combes, New York.—p. 906.
Case of Xeroderma Pigmentosum, with Special Pigment Study. S. W. Becker, Chicago, and L. M. Pautrier and F. Woringer, Strasbourg, France.—p. 915.
Dermatitis from Cinnamon. L. Tulipan, New York.—p. 921.

Epidermophytids.—In summarizing an analysis of the clinical concept of the palmar and digital epidermophytids, Scholtz emphasizes the following points: 1. Bacteriologic evidence presented by him cannot be accepted as conclusive, because the claim of uniformly negative observations in the lesions of the hand is not concurred in by other observers. 2. The trichophyton test is not specific, and because of its persistent nature it is conducive to false positive tests and vague and uncertain clinical deductions. 3. Positive blood cultures and the experimental reproduction of mycotic dyshidrotic lesions are of argumentative importance, but so far they have been found positive in so few isolated cases as hardly to be definite proof of the conception of epidermophytids. 4. From a clinical point of view the conception of palmar and digital epidermophytids gives rise to many unsolved questions and unexplainable clinical problems; it rests also on statements and observations so conflicting with general dermatologic experience as to render it inacceptable without further clinical elucidation.

Lupus Erythematosus.—Madden calls attention to the fact that acute disseminated lupus erythematosus is an important clinical entity. The symptoms are more or less constant, but the degree of severity varies greatly. Constitutional symptoms may completely overshadow the cutaneous symptoms. Albuminuria was a constant finding in six fatal cases reported by the author. Its presence may be of definite prognostic value. In fatal cases leukocytosis does not develop, even when conditions arise in which it would be expected. The histopathology is not an important diagnostic aid but is suggestive and worthy of study. The disease has the characteristics of a septicemia or toxemia. Streptococci have been repeatedly reported to be present in the blood stream. Tuberculosis has not been proved to be an etiologic factor in many instances, but the newer work must be evaluated before tubercle bacilli are excluded as a probable cause. There is no specific therapy. The prognosis is grave, even when there is apparent recovery, for relapses are the rule.

Effects of Cortico-Adrenal Extract on Carbohydrate Metabolism in Normal Animals. S. W. Britton and H. Silvette, Richmond, Va.—p. 693.

Apparent Prepotent Function of Adrenal Glands. S. W. Britton and H. Silvette, Richmond, Va.—p. 701.

Studies of Blood of Natives at High Altitude.—Hurtado presents a number of observations on certain of the blood characteristics of the Indian natives of the Peruvian Andes. The investigation was conducted at an altitude of 14,890 feet (4,532 meters) and with an average barometric pressure of 410 mm. of mercury. The subjects studied were carefully selected as normal men, and the results obtained suggest the following conclusions. 1. Observations on the erythrocyte count gave an average increase of about a million red cells per cubic millimeter over the normal value at sea level, but a considerable percentage of these natives live with a red cell count which would be considered normal at sea level. This observation indicates that an increase in the erythrocytes of the circulating blood, although the common condition, is not an essential adaptation process for normal life at high altitudes. There is no relationship between the red cell count and age or body measurements. 2. The average number of grams of hemoglobin per hundred cubic centimeters of blood has almost the same value as the normal average at sea level. In only 50 per cent of the cases was a higher result obtained. Each red cell at high altitude contains less hemoglobin, as compared with the normal erythrocyte at sea level, but the corpuscular hemoglobin is not a fixed characteristic: it varies inversely with the level of the red cell count; that is, the higher the count the less hemoglobin in each cell, and vice versa. Oxygen determinations in arterial and venous blood verify these observations and indicate that the red cell comes to the tissues with a lower oxygen content as compared with the erythrocyte at sea level. 3. There is a marked increase in the hematocrit (percentage of erythrocytes), and it is proportionally greater than the increase in the red cell count, with the result that each erythrocyte has a larger volume (as compared with the normal corpuscle at sea level). Again the corpuscular volume is not a fixed characteristic: it varies inversely with the level of the red cell count. The larger size of the erythrocyte was also confirmed by direct measurement of its diameter. 4. The diminished amount of hemoglobin in a larger corpuscle gives a lower value for the concentration of that substance in relation to the volume of the cell. Only about one fourth of the erythrocyte is saturated with hemoglobin. Equal and parallel changes in cell volume and hemoglobin, under the influence of variations in the red cell count, keep remarkably constant such concentration. There is an almost perfect inverse correlation between the hematocrit and the hemoglobin concentration in each red cell. These observations suggest that the adaptation processes to the high altitude, from the point of view of blood morphology, are to be found not primarily in red cell count and hemoglobin increases, as it has often been remarked, but rather in a fine and close correlation between cell number, volume and hemoglobin, and in the existence of a larger surface area in a given volume of blood and in the individual erythrocyte for the hemoglobin and oxygen content, factors which would favor the proper supply of this gas to the tissues, this last process being perhaps the basic and fundamental problem at high altitude.

Excretion of Estrin by Women.—The Smiths gave estrin orally to women, whose urines were followed for its excretion over a period of one or two months. Eight cases are reported, including four amenorrheic patients, three sterile women, and one normal control. The results would indicate that in women, as in rabbits, estrin is excreted only when the organism has been exposed to the action of corpus luteum. It appears possible by this means to differentiate between a persistent corpus luteum, irregular appearance or total absence of corpus luteum, and cyclic activity of the corpus luteum.

Drainage of Mucus in Accessory Sinuses.—Hilding describes an experiment in which he demonstrated that the drainage of the frontal sinus of a dog was effected by means of the movement of a lining film or web of mucin motivated by ciliary action. The film was extremely thin but of high viscosity and had sufficient tensile strength to sustain a considerable degree of traction. This traction was a very important factor in the drainage. The direction of motion was that of a flat, lateral spiral so arranged that there was but little tension from conflicting currents in the film of mucin. There was a speed gradient of fairly uniform acceleration (when numerous tests were averaged); the speed at the ostium was four to six times as great as that on the mesial wall. Several different materials were used to test the time required to raise small volumes from the deepest recess of the sinus, upward to the level of the ostium. All were moved more or less successfully, but thick, mucilaginous mucin was moved most completely and rapidly. Roughly, one or two hours was required to move out 1 cc. of thick mucin. A longer time was required to remove creamy pus, and still longer to remove watery substances. Clinical application of these facts can be made readily, if conditions in the sinuses of man are similar, as presumably they are. If bacteria gain access to a sinus and lodge in the film of mucin on the walls, they are swept out in a very short time. If a volume of fluid gains access, or a volume of secretion forms, a much longer time is required to remove it. In general, the more mucin there is in the secretion, the better it drains. Pus drains poorly on account of its physical properties. In addition it may contain toxins or other materials that destroy ciliary action.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

27: 657-800 (May) 1932

*Evaluation of Pneumoventriculography and Encephalography. A. W. Adson, Rochester, Minn.—p. 657.

*Encephalography in Children: Further Observations in Children with Fixed Lesions of Brain. R. C. Eley and E. C. Vogt, Boston.—p. 686.

*Interpretation of Roentgenograms of Pituitary Tumors: Explanations of Some Sources of Error Confusing Clinical and Roentgenologic Diagnoses. H. K. Pancoast, Philadelphia.—p. 697.

*Roentgen Observations in Chronic Progressive Bulbar Palsy. A. C. Christie, Washington, D. C.—p. 717.

*Contrast Medium Roentgenography in Thoracic Surgery. C. A. Hedblom and W. van Hazel, Chicago.—p. 720.

Mensuration of Heart and Chest in Left Postero-Anterior Oblique Position: Comparative Study: IV. Comparison of Transverse Diameters of Heart and Cardiothoracic Indexes of Chest Obtained from Postero-Anterior and Left Anterior Oblique Chest Films. W. W. Fray, Rochester, N. Y.—p. 729.

Agranulocytic Angina: Report of Effects of Irradiation in Marked Leukopenic States: Relation of Such Studies to Roentgen Treatment of Agranulocytosis. C. A. Waters and W. B. Firor, Baltimore.—p. 740.

Water Phantom Intensity Measurements of Roentgen Rays Produced by 127,000 Volts. J. L. Weatherwax and C. Robb, Philadelphia.—p. 749.

Principle of Absorption and Method of Multiple Converging Beams. A. U. Desjardins, Rochester, Minn.—p. 755.

Pneumoventriculography and Encephalography.—Adson considers ventriculography a valuable aid to differential diagnosis and localization of brain tumors. However, it should not be used indiscriminately; neither should it be substituted for thorough neurologic examination. Occasionally it may be employed to supply confirmatory evidence, or when the localizing clinical evidence is vague. It serves, also, as a therapeutic agent in avoiding unnecessary exploratory craniotomy by revealing normal ventricles or a subcortical, inaccessible tumor of the midbrain. The complications and the fatalities may be minimized by intravenous administration of hypertonic solutions, saline cathartics, and enemas, by repeated ventricular punctures, and by early exploration. Encephalography is of greatest value in the differential diagnosis and localization of arachnoiditis, posttraumatic lesions, and atrophy of the brain. Occasionally, it may be used as an aid to localization in cases in which tumor of the brain is suspected, without evidence of increased intracranial pressure. It is the author's impression that the use of encephalography is being abused, since the clinical features, often, are sufficient to make possible the diagnosis without subjecting the patient to the distressing symptoms of the procedure.

Encephalography in Children.—Eley and Vogt state that encephalography is a valuable diagnostic procedure in the study of children with fixed lesions of the brain. The information obtained warrants the dangers involved. The judicious employment of this procedure should eventually lead to a better understanding and classification of such conditions as epilepsy, feeblemindedness, and cerebral palsy occurring in children. From the encephalograms alone, however, one is unable to determine the nature of the initial etiologic agent responsible for the ultimate gross pathologic changes.

Roentgenograms of Pituitary Tumors.—According to Pancoast, roentgenologists must admit that the roentgenographic diagnosis of pituitary tumors is by no means infallible, even aside from the difficulties in interpretation between their effects and the deformations of the sella produced by suprasellar and metasellar growths and rarely parasellar lesions. The ophthalmologist and the neurologist will also admit that the clinical manifestations of hypophyseal adenomas are not always typical. Satisfactory explanations for the discrepancies in characteristic roentgenographic appearances and clinical phenomena of the pituitary tumors are to be found in (1) peculiarities or variations in the sella turcica, (2) variations in the location of the optic chiasm, (3) anomalies and abnormalities in the constituent parts of the circle of Willis, and (4) variations in the location of the infundibulum. All these explanations are given, as far as possible, on the basis of careful anatomic and necropsy studies, operative observations and correlation of roentgenographic appearances with clinical, operative and postmortem observations. The author describes the normal anatomic and roentgenographic appearances of the sella turcica and variations therefrom within normal limits. As the sella is the key to the diagnostic situation in so many cases of intracranial lesions in various localities, a classification on the basis of sellar changes is strongly advocated, as follows: (1) intrasellar tumors (adenomas); (2) suprasellar growths, originating either from vestigial remnants of the craniopharyngeal pouch or from other midline structures nearby; (3) parasellar lesions arising in the middle fossa near the sella and deforming the latter directly or through the agency of the internal carotid artery, and (4) metasellar tumors, deforming through the agency of a dilated third ventricle enlarged from ventricular block below it. The differential points of distinction of each group are discussed, together with the effects of certain other causes of sellar deformation.

Chronic Progressive Bulbar Palsy.—Christie believes that chronic bulbar palsy should always be thought of in cases of difficulty in swallowing when the delay is in the pharynx. Roentgen examination serves to differentiate between obstruction to the lumen and deficient muscular action of the constrictors. Neurologic examination will usually serve to differentiate further between central lesions, those of the pons and medulla, and peripheral neuritis.

Contrast Medium Roentgenography in Thoracic Surgery.—Hedblom and van Hazel call attention to the fact that there are certain types of thoracic disease in which contrast medium roentgenography is especially valuable. First among these is bronchiectasis, and second that group of long standing suppurative processes in which the whole affected portion of the lung, because of fibrosis, pleural thickening, or fluid, presents a more or less diffuse clouding and in which the physical signs are similarly masked. In some cases of these conditions the opacity is so dense that even iodized oil fails to produce a very clear contrast shadow. In most instances, however, it shows the nature of the lesion when all other methods fail. In some types of empyema and of chronic tuberculosis it is of distinct help in diagnosis.

American Journal of Tropical Medicine, Baltimore

12: 199-277 (May) 1932

Differential Diagnosis of Sprue and Pernicious Anemia. B. K. Ashford, Porto Rico, West Indies.—p. 199.
Some Infections Simulating Experimental Typhus in Guinea-Pig. E. L. Walker and Marion A. Sweeney, San Francisco.—p. 217.
*Sunstroke and Allied Conditions in United States. G. C. Shattuck and Margaret M. Hilferty, Boston.—p. 223.
Invasion of Wall of Intestine by Trichomonas Hominis. K. M. Lynch, Charleston, S. C.—p. 247.
Transfer of Yellow Fever Virus from Female to Male Aedes Aegypti. J. A. Kerr and T. B. Hayne, Lagos, Nigeria, West Africa.—p. 255.
Rôle of Solutes and Colloids in Nutrition of Anopheline Larvae: Preliminary Report. E. H. Hinman, New Orleans.—p. 263.

Sunstroke and Allied Conditions in the United States.—Shattuck and Hilferty present the results of a statistical study which shows that the higher death rates attributed to excessive heat including sunstroke are distributed with great irregularity in the United States. As a rule, the death rates were markedly higher in urban than in rural localities. This feature becomes highly pronounced in years when the deaths from heat have been notably frequent. The rates fluctuate markedly from year to year, but a slight downward trend is indicated. The average death rates by ages are relatively high during the first year of life, and very low thereafter up to the age of 20. They then begin to rise gradually. After the age of 70, the rates rise sharply. The death rate from heat effects in states having a large Negro population is 2.4 times as high for the colored as for the white. This is approximately true for both sexes. A correlation with occupation is suggested by these figures. The reporting of deaths from excessive heat in every month of the year points to industrial conditions as causative of many of these cases. Although means of evaluating the importance of suitable clothing are not available, there are indications that it is a factor which should not be overlooked.

Archives of Dermatology and Syphilology, Chicago

25: 785-986 (May) 1932

Achromia Parasitaria: Its True Nature and Etiology. V. Pardo-Castello, Havana, Cuba.—p. 785.
"La Cacomondade": The Morbus Gallicus, Two Centuries Ago. W. R. Riddell, Toronto, Canada.—p. 790.
Chemotherapeutic Studies of Acetarsone (Stovarsol). G. W. Raiziss and Marie Severac, Philadelphia.—p. 799.
*Epidermophytids as a Clinical Conception. M. Scholtz, Los Angeles.—p. 812.
Urticaria from Sensitiveness to Cold: Recovery Following Removal of Pelvic Tumor. E. Weiss, Philadelphia.—p. 823.
Reaction of Skin and Its Secretions in Eczema: I. Hydrogen Ion Concentration of Skin Surface in Eczema. O. L. Levin and S. H. Silvers, New York.—p. 825.
Influence of Viosterol Hypercalcemia on Skin Irritability of Dogs. A. G. Schoch, Dallas, Texas.—p. 835.
Local Responses to Histamine in Normal Skin, in Dermatophytosis, in Alopecia Areata and in Scleroderma. A. D. King, Philadelphia.—p. 840.
Trichophytin in Diagnosis. C. M. Williams and C. C. Carpenter, New York.—p. 847.
Perspiration: II. Absence of the Aschheim-Zondek Hormone in Pregnancy. R. L. Gilman and F. D. Weidman, Philadelphia.—p. 852.
*Acute Disseminated Lupus Erythematosus. J. F. Madden, St. Paul.—p. 854.
Normal Pigmentation in Nails of the Negro. S. Monash, New York.—p. 876.
Poikiloderma Atrophicans Vasculare, Jacobi: Report of Case with Review of Recent Literature. L. Taussig, San Francisco.—p. 882.
*Spontaneous Spirochetosis and Experimental Syphilis in Rabbits. S. M. Fried and S. S. Orlov, Moscow, U. S. S. R.—p. 893.
*Annular Macular Syphilid (Neurosyphilid, Unna). F. C. Combes, New York.—p. 906.
Case of Xeroderma Pigmentosum, with Special Pigment Study. S. W. Becker, Chicago, and L. M. Pautrier and F. Woringer, Strasbourg, France.—p. 915.
Dermatitis from Cinnamon. L. Tulipan, New York.—p. 921.

Epidermophytids.—In summarizing an analysis of the clinical concept of the palmar and digital epidermophytids, Scholtz emphasizes the following points: 1. Bacteriologic evidence presented by him cannot be accepted as conclusive, because the claim of uniformly negative observations in the lesions of the hand is not concurred in by other observers. 2. The trichophyton test is not specific, and because of its persistent nature it is conducive to false positive tests and vague and uncertain clinical deductions. 3. Positive blood cultures and the experimental reproduction of mycotic dyshidrotic lesions are of argumentative importance, but so far they have been found positive in so few isolated cases as hardly to be definite proof of the conception of epidermophytids. 4. From a clinical point of view the conception of palmar and digital epidermophytids gives rise to many unsolved questions and unexplainable clinical problems; it rests also on statements and observations so conflicting with general dermatologic experience as to render it inacceptable without further clinical elucidation.

Lupus Erythematosus.—Madden calls attention to the fact that acute disseminated lupus erythematosus is an important clinical entity. The symptoms are more or less constant, but the degree of severity varies greatly. Constitutional symptoms may completely overshadow the cutaneous symptoms. Albuminuria was a constant finding in six fatal cases reported by the author. Its presence may be of definite prognostic value. In fatal cases leukocytosis does not develop, even when conditions arise in which it would be expected. The histopathology is not an important diagnostic aid but is suggestive and worthy of study. The disease has the characteristics of a septicemia or toxemia. Streptococci have been repeatedly reported to be present in the blood stream. Tuberculosis has not been proved to be an etiologic factor in many instances, but the newer work must be evaluated before tubercle bacilli are excluded as a probable cause. There is no specific therapy. The prognosis is grave, even when there is apparent recovery, for relapses are the rule.

Spirochetosis and Experimental Syphilis.—According to Fried and Orlov, spontaneous spirochetosis is an autonomous disease found in rabbits (and probably in the field hare). The infection is caused by Spirochaeta cuniculi and is transmitted from animal to animal by genital contact only, leading to a chronic disease of the skin in the anogenital region (and, in females, of the mucosa) and sometimes also of other parts of the body. The process is sometimes accompanied by a regional adenopathy. The occasional presence of spirochetes in the tributary lymph nodes and also in the blood previously reported by others was not confirmed in the authors' studies. The Wassermann and Sachs-Georgi reactions are, as a rule, negative in spontaneous spirochetosis. Animals cured of spontaneous spirochetosis are susceptible to new infections. Spirochaeta cuniculi causes no specific lesions in the viscera or in the central nervous system. Likewise the cerebrospinal fluid in this disease shows no cytologic or chemical changes. Spontaneous spirochetosis is a local parasitic disease of the skin which may be generalized in rare instances. It is believed that in spite of the morphologic identity of Spirochaeta cuniculi and Spirochaeta pallida, their biologic properties and the processes that they cause are entirely different. The two diseases can be differentiated by clinical and laboratory tests. In difficult cases the therapeutic test with bismuth or arsphenamine may be a reliable guide in the differential diagnosis. This study has revealed (as others also have observed) that, not infrequently, apparently normal rabbits show changes of the viscera, central nervous system and cerebrospinal fluid which resemble those seen in advanced syphilis in man. The results obtained from the study of the syphilitic disease of these organs in the rabbit must therefore be accepted with reservations.

Annular Macular Syphilid.—Combes describes annular macular lesions occurring in syphilis which, while clinically resembling those developing in early syphilis and in the relapsing roseola, are in reality not a cutaneous syphilid at all, in the histologic sense of the term, but rather a vascular manifestation of the disease. Their complete identity cannot be verified without a microscopic examination of the excised tissue, and then only when this is interpreted in correlation with the clinical features of the process. The apparent rarity of the condition may be readily explained. In the first place the eruption may be so faint as to escape notice, particularly in the absence of any subjective symptoms. Secondly, as it comes so long after the initial infection and because of its unusual and picturesque appearance, syphilis may not be suspected. It is most likely to be confused with erythema multiforme, pityriasis rosea, pityriasis versicolor, trichophytosis, seborrhea corporis and leprosy. From the cutaneous syphilids it may be differentiated by the fact that it is purely a circulatory disturbance and the clinical appearance is due solely to changes in the vascular network of the skin. Other classic characteristics are the complete absence of infiltration, the stability, chronicity and slow response to therapy.

Archives of Neurology and Psychiatry, Chicago

27: 987-1272 (May) 1932

*Lissauer's Dementia Paralytica: Clinical and Pathologic Study. H. H. Merritt, Boston, and M. Springlova, Prague, Czechoslovakia.—p. 987.

Studies in Sensation: II. Mode of Stimulation of Cutaneous Sensations of Cold and Warmth. H. C. Bazett and B. McGlone, Philadelphia.—p. 1031.

Nerve Degeneration Accompanying Experimental Poliomyelitis: II. Histologic and Functional Analysis of Normal Somatic and Autonomic Nerves of Monkey. G. H. Bishop, P. Heinbecker and J. L. O'Leary, St. Louis.—p. 1070.

*Spontaneous Subarachnoid Hemorrhage: Its Relation to Aneurysms of Cerebral Blood Vessels. I. Strauss, J. H. Globus and S. W. Ginsburg, New York.—p. 1080.

*Spontaneous Cerebral Hemorrhage: Discussion of Four Types, with Surgical Considerations. C. Bagley, Jr., Baltimore.—p. 1133.

*Brain Changes in Malignant Endocarditis. I. B. Diamond, Chicago.—p. 1175.

*Toxic Encephalopathy in Measles. A. Ferraro and I. H. Scheffer, New York.—p. 1209.

*Action of Certain Drugs on Cerebrospinal Fluid and Internal Jugular Venous and Systemic Arterial Pressures of Man. J. Loman and A. Myerson, Boston.—p. 1226.

Causes of Epilepsy. S. Cobb, Boston.—p. 1245.

Lissauer's Dementia Paralytica.—Merritt and Springlova review the clinical and pathologic reports in thirty-five cases of Lissauer's dementia paralytica in the literature and report eight additional cases. Their eight cases were characterized clinically by a relatively long duration, the presence of apoplectiform and epileptiform attacks, often jacksonian, and the appearance of localizing signs, such as hemiplegia and aphasia. Pathologically, they all showed macroscopic atrophy, usually unilateral, of certain convolutions, generally in the temporal lobe and inferior parietal lobe. Microscopically, they were characterized by the presence of status spongiosus in the cortex and myelin loss in the white matter of the atrophic convolutions. It is shown that these lesions are not produced by the usual dementia paralytica process alone, and on the basis of clinical and pathologic data it is concluded that they are produced by a combination of functional disturbance of the circulation with the dementia paralytica process. It is pointed out that the usual distribution of the atrophy in these cases agrees with the distribution of the posterior branches of the middle cerebral artery. It is also emphasized that there is nothing to separate sharply this type of case from the "usual" case of dementia paralytica. The differences would appear to be quantitative rather than qualitative. Functional disturbance of the circulation probably occurs in a much larger percentage of the cases of dementia paralytica than is represented by those diagnosed as Lissauer's dementia paralytica. Status spongiosus was found by Fischer in 10 per cent of cases of dementia paralytica, and it is probable that primary loss of myelin in the white matter would be found just as often if more thorough examinations were made.

Spontaneous Subarachnoid Hemorrhage.—Strauss and his associates describe thirty-four cases illustrating the syndrome of spontaneous subarachnoid hemorrhage. They call attention to the fact that the term "spontaneous subarachnoid hemorrhage" is limited to massive extravasation of blood into the subarachnoid space, caused by spontaneous rupture of a blood vessel; it excludes hemorrhages into the same space resulting from extension of intracerebral bleeding and minor bleeding in the course of systemic infections, blood disease or those occurring during agonal episodes. The syndrome is characterized by a relatively short prodromal period in which headache, dizziness, nausea and rigidity of the neck and spine are the most prominent manifestations. It is followed by an abrupt and explosive onset of the active stage, ushered in by violent headache, partial or total loss of consciousness, and occasionally convulsions. Examination discloses signs of meningeal irritation (rigidity of the neck and Kernig and Brudzinski signs), signs of increased intracranial tension (papilledema and depressed reflexes) and often palsies of extrinsic ocular muscles. At this stage the cerebrospinal fluid is usually bloody, occasionally xanthochromic and rarely clear. The clinical course may be short, the patient recovering in the course of several days, or stormy and protracted, lasting over a period of weeks (average in the authors' material, forty-six days). During the clinical course, neurologic and systemic manifestations may develop and disappear. Among the former are intellectual and emotional disturbances, approaching or developing into a confusional psychosis, progressive elevation of the disks, accentuation in the meningeal signs and cranial nerve palsies. Among the systemic manifestations are elevation of temperature, presenting an irregular curve, and leukocytosis. Recurrences of bleeding, with coincident recurrence of signs and symptoms, are not uncommon. They may occur during the initial attack in the character relapses. They may take the form of repeated attacks after a period of convalescence or after an apparent full recovery from a previous episode. Several recurrences may occur before a fatal attack. The recognition of the syndrome of spontaneous subarachnoid bleeding as differing from other forms of intracranial hemorrhage is essential, for the therapeutic indications differ. Treatment for spontaneous subarachnoid hemorrhage consists of repeated lumbar punctures to relieve symptoms of increased intracranial tension. Headache, the mental state, slowing of the pulse and papilledema are the guiding factors determining the need and frequency of this therapeutic measure. The prognosis is always grave, though not hopeless; satisfactory recoveries are frequent. The common anatomic changes are arteriosclerosis of the cerebral blood vessels, with or without frank aneurysmal defects. Inflammatory lesions of blood vessels are also capable of causing aneurysmal formation with ultimate rupture and hemorrhage. Spontaneous subarachnoid hemorrhage may occur at any age (from 10 to 70), though it is most frequent between the ages of 25 and 40. Spontaneous subarachnoid hemorrhage is a disease entity that should be clearly understood not only by the neurologist but also by the internist, who is more likely to be called on to diagnose and treat the condition in its acute stage.

Spontaneous Cerebral Hemorrhage.—According to Bagley, spontaneous cerebral bleeding, whether from meningeal or intracerebral vessels, is often the result of rupture of an aneurysm, which may vary in size from a fraction of a millimeter to several millimeters in diameter. Arteriosclerosis is the most common cause of these aneurysms, but syphilis, trauma, bacteriologic reactions and congenital defects of the arterial walls are responsible for the lesion in some cases, or the bleeding may be due to a direct rupture of an arteriosclerotic or a congenitally weak vessel wall without aneurysmal formation. Careful neurologic examination and grouping is essential so that the proper type of therapeutic procedure may be chosen. In the treatment of these patients, three conditions must be considered: (1) a sterile meningitis produced by the irritating effect of blood in the cerebrospinal fluid; (2) increased intracranial pressure produced by intracerebral or extracerebral clot; (3) disturbance of the cardiorespiratory and thermoregulatory centers seen in extensive extravasations or large clots at the base with destruction of the basal ganglions and rupture into the ventricle. The patient with the third symptomatology cannot be benefited surgically. Theoretically, blood in the cerebrospinal fluid, as well as intracerebral and extracerebral clots following spontaneous cerebral rupture, should be removed, as in traumatic cases, in the hope of shortening the duration of the illness or preventing a fatality. In traumatic cases in which there has been a tear of a normal vessel wall there is within a short time complete occlusion of the vessel with little likelihood of recurrent bleeding, but the possibility of recurrent bleeding in these cases of spontaneous rupture in which the outflow of blood is stayed only by a recent clot makes the early removal of the blood a complex question. The removal of the blood, in some cases at least, must be undertaken only as a means of controlling the more serious symptoms, allowing the patient to go through a tedious course of meningeal irritation or increased intracranial pressure until such time as the clot in the ruptured vessel becomes organized and effectively plugs it. Subarachnoid drainage is useful in the cases in which the blood is washed into the cerebrospinal fluid but should never be undertaken in cases showing evidence of large blood clots. If a clot exists, the patient recovers spontaneously or the symptoms progress, demanding removal of the clot. Superficial localized clots can be removed through a craniotomy, a procedure in many cases contraindicated by the poor general condition of the patient and the possibility of recurrent bleeding, or by aspiration of the blood through a small trephine opening. Aspiration can be accomplished under local anesthesia but must be delayed until there is beginning cyst formation; in the author's cases it has not been followed by further bleeding. If the clot cannot be localized, serious symptoms of increased intracranial pressure may be relieved by a decompression. The author emphasizes that spontaneous cerebral hemorrhage is a common accident and may occur at any age; it must be taken into consideration in the differential diagnosis of a large number of intracranial disorders. Treatment in properly selected cases, especially in young persons, is followed by satisfactory results.

Brain Changes in Endocarditis.—Diamond reports that cerebral lesions in malignant endocarditis are extremely common. Of a consecutive series of thirteen fatal cases, all showed pathologic lesions in the brain even when definite clinical manifestations other than those usually regarded as of septic origin were absent. In some cases, however, the cerebral symptoms dominated the clinical picture. The types of lesion in the brain may be as varied as the clinical picture. They may be inflammatory or degenerative, circumscribed or diffuse, and the forms are frequently combined. Indeed, the lesions of the brain are only a partial manifestation of a general involvement of the central nervous system and of the whole body. They represent reactions of the nerve tissue to the infectious process that underlies malignant endocarditis. Bacteremia is usually present and is of especial interest in regard to its effect on the nerve tissue. Micro-organisms and septic emboli from the thrombo-ulcerative valves of the heart more or less flood the blood stream and become lodged in various organs, including the brain.

Toxic Encephalopathy in Measles.—Ferraro and Scheffer believe that a toxic factor is the basis of the cerebrospinal manifestation occurring in the course of measles, and that if this factor is extremely powerful, all the elements, neuroglia and nerve cells undergo changes dominantly of the degenerative type, while if the intensity of this factor is moderate, the action will be fought in the perivascular areas, thus stimulating the defensive power of microglia cells, which therefore proliferate around the blood vessels.

Action of Certain Drugs on Cerebrospinal Fluid and Blood Pressure.—Loman and Myerson describe experiments in which they demonstrated that epinephrine causes a rise in intracranial pressure, together with a rise of arterial and internal jugular venous pressures. The rise in intracranial pressure is probably due to the sharp rise in arterial pressure, since there is a vasoconstriction of the cerebral blood vessels. Amyl nitrite causes a rise in cerebrospinal fluid pressure with a fall of general arterial pressure and a rise in internal jugular venous pressure. Since amyl nitrite causes a vasodilatation of the blood vessels of the brain, it is believed that the rise in spinal fluid pressure follows the increased brain volume caused by vasodilatation. Solution of pituitary causes a rise in cerebrospinal fluid and internal jugular venous pressures. The arterial pressure drops. It is difficult to explain the rise in cerebrospinal fluid pressure in the case of this drug, since there is a conflict of opinion as to whether the vessels of the brain are dilated or constricted. Histamine causes a sharp rise in cerebrospinal fluid pressure with a moderate to slight drop of arterial pressure and no change in jugular venous pressure, thus forming an exception to the rule that cerebrospinal fluid pressure and intracranial venous pressure are linked together. The explanation may be that this drug has a definite secretory effect on the choroid plexus or that there may be a vasodilatation with an increased flow of blood through the brain, thus increasing the brain volume without increasing the internal jugular venous pressure. Caffeine sodium citrate causes a drop of cerebrospinal fluid pressure with little change in either the internal jugular venous or the general arterial pressure. The explanation may be that the diuretic effect of caffeine, by lessening the blood volume, causes this drop.

Delaware State Medical Journal, Wilmington

4: 99-118 (May) 1932

Evolution of Quackery. M. Fishbein, Chicago.—p. 99.
Arthritis of Spine, with Especial Reference to Chronic Type. P. N. Jepson, Philadelphia.—p. 108.
Some Oral Lesions Requiring Surgery. J. P. Wintrup, Wilmington.—p. 111.

Journal of Comparative Neurology, Philadelphia

54: *277-562 (April 15) 1932*

Hindbrain of Opossum, Didelphis Virginiana. H. C. Voris and N. L. Hoerr, Chicago.—p. 277.
Development of Cerebellum in Amblystoma. O. Larsell.—p. 357.
Description of Central Nervous System of Porpoise (Tursiops Truncatus). O. R. Langworthy, Baltimore.—p. 437.
Development of Brain of Amblystoma (3 to 17 Mm. Body Length). R. C. Baker and G. O. Graves, Columbus, Ohio.—p. 501.

Journal of Immunology, Baltimore

22: 315-395 (May) 1932

*Immunity to Exotoxin of Streptococcus Hemolyticus Developed During Scarlet Fever, and Other Conditions as Shown by Skin Tests. G. Nemhauser, New York.—p. 315.
Purification of Concentrated Antitoxins. T. D. Gerlough and W. White, *New Brunswick, N. J.—p. 331.*
*Diphtheria Antibodies Transmitted to Offspring of Immune Guinea-Pigs. L. V. Richardson, Nashville, Tenn.—p. 351.
Attempts to Produce General or Local Hypersensitivity to Vaccinia Virus in Guinea-Pigs Actively or Passively Immunized. L. Buchbinder, *New York.—p. 359.*
Serum Sickness in Rabbits: III. Reactions of Body Temperature and Leukocytic Curves. O. E. Hagebusch, F. J. Robben, M. S. Fleisher and L. Jones, St. Louis.—p. 373.

Immunity to Exotoxin of Streptococcus Hemolyticus.—Nemhauser calls attention to the fact that since antitoxin administered to persons with scarlet fever does not interfere with the development of antitoxic immunity in convalescence, the fear that no immunity will be developed is not a contraindication to the use of serum in severe cases of scarlet fever Neither does the presence of tonsils seem to be any significant factor in predisposing to scarlet fever

Transmission of Diphtheria Antibodies to Offspring.—Richardson made measurements of the diphtheria antibodies, antibacterial and antitoxic, in the serums of the offspring of guinea-pigs previously immunized with diphtheria filtrate The data showed that diphtheria antibodies of the antibacterial sort as well as antitoxin are transmitted placentally The proportion of antitoxin antibodies to nonantitoxin antibodies found in the serums of the offspring shortly after birth was comparable to that in the serums of their respective mothers The serums of a number of families were studied over periods of sixty or more days following the births, the data of these tests showed that the amount of antibodies originally transferred by the mother is the important factor in determining the duration of the passive immunity of the offspring

Journal of Infectious Diseases, Chicago

50: *377-572* (May June) 1932

*An Institutional Outbreak of Poliomyelitis Apparently Due to Streptococcus in Milk E C Rosenow Rochester, Minn —p *377*
Incidence of Lactobacillus Acidophilus in Adults N Kopeloff, N Blackman and B McGinn, New York —p *426*
*Epidemic of Croupous Pneumonia Caused by Pneumococcus Type I A Strøm, Oslo, Norway —p 430
*Sporotrichosis Its Transmission to Plants and Animals Rhoda W Benham and Beatrice Kesten, New York —p *437*
Soluble Specific Substances from Yeastlike Fungi H D Kesten and E Mott, New York —p 459
Biologic Action of Ultrahigh Frequency Currents Further Studies R A Hicks and W T Szymanowski, Pittsburgh —p 466
*An Organism Intermediate Between Bacillus Typhosus and Bacillus Dysenteriae Shiga Isolated in Atypical Typhoid Fever Report of Two Cases A H Lazere and Virginia Breaks, Chicago —p 473
Nonspecific Orchitis and Keratitis in Experimental Syphilis E E Ecker and L A Weed, Cleveland —p 484
Dissociation of Streptococcus Cardioarthritidis Norma C Styron and Sophie Spicer, New York —p 490
Antigenic Relationships of Shigella Dispar H Welch and F L Mickle, Hartford, Conn —p 524
Growth of Erysipelas and Scarlet Fever Streptococci on Hemoglobin Chocolate Agar C C Saelhof, Chicago —p 536
Metabolism Studies on Brucella Group III Viability in Aqueous Solutions C E ZøBell and Margaret H ZøBell, San Francisco —p 538
Reaction of Rabbits Following Inhalation of Type III Pneumococci E G Stillman, New York —p 542
Correlated Fermentative and Antigenic Variation in Certain Strains of Morgan's Bacillus L C Havens and Anne George Irwin, Montgomery, Ala —p 550
Agglutinin Absorption Studies on Brucella W N Plastridge Storrs, Conn , and J G McAlpine, Caracas, Venezuela, South America —p 555

Milk-Borne Poliomyelitis.—Rosenow reports a study of an epidemic of acute poliomyelitis at a midwestern college A pleomorphic streptococcus having a peculiar infecting power, specific immunologic properties and characteristic cataphoretic velocity was isolated from the throats and spinal fluid in frank and abortive cases, from the throats of a large proportion of well students and from the milk of healthy cows in the dairy at the time of the epidemic, but not after the epidemic had subsided and not at the time of the epidemic or later from the throats of student volunteers, or from the milk supply at a neighboring, unaffected college The epidemic was traced to raw milk from which large numbers of the "poliomyelitis" streptococci were isolated New cases abruptly ceased to occur after the use of the raw milk was discontinued There occurred a marked reduction of positive skin reactions to the "poliomyelitis" streptococcus during convalescence, and in the well students, especially males, six weeks after the epidemic had subsided, whereas the incidence remained the same in the students at the unaffected college at the time of the epidemic and six weeks later The serum of persons who reacted negatively to intradermal injections of the "poliomyelitis" streptococcus, irrespective of whether they had had poliomyelitis, and the poliomyelitis antistreptococcus serum used in treatment neutralized the toxigenic substance to a greater degree than the serum of persons who reacted positively and the serum of the normal horse The serum from the convalescents and that from persons who had had poliomyelitis a long time before had a more marked specific potential-lowering effect on the "poliomyelitis" streptococcus than the serum of persons who had not had poliomyelitis The poliomyelitis antistreptococcus serum seemingly had a beneficial action in the treatment of the patients

Croupous Pneumonia Caused by Pneumococcus Type I.—Strøm reports that an epidemic of lobar croupous pneumonia in an orphanage was caused by pneumococcus type I Pneumococcus type I was found in the sputums and in cultures from the nose and throat of the patients during illness and up to seventy-three days after the crisis In one case it was found in a culture from the nose and throat four days before the onset of the disease Of the contacts, 33 3 per cent were found to be carriers during the height of the epidemic, and 16 9 per cent two and one-half months later The strains from the patients were more virulent in mice than those from the carriers The disease was more prevalent among the older boys than among the younger ones, presumably because the former represented a more rural population than the latter

Sporotrichosis—Benham and Kesten describe experiments in which they observed that Sporotrichum schenckii produced in the monkey a nodular sporotrichosis simulating the lymphangitic type of infection in man The human disease was transmitted to carnations, in which it produced a bud rot similar to that caused by Sporotrichum poae After living saprophytically or parasitically in plants, Sporotrichum schenckii retained its virulence for animals

Organism Isolated in Atypical Typhoid.—Lazere and Breaks isolated a bacillus from the blood of two children in the same family, who apparently had the same infection, an atypical typhoid Bacteriologically and serologically, this bacillus was intermediate in its characteristics between the typhoid bacillus and the Shiga dysentery bacillus

Laryngoscope, St. Louis

42: 335 415 (May) 1932

Early Recognition of Otitic Intracranial Complications V V Wood, St Louis —p 335
Mastoiditis and Nephritis Case Report C E Kinney, Cleveland —p 356
Sinus Thrombosis A J Guerinot, Pittsburgh —p 359
Von Recklinghausen's Disease, with Report of Case Involving External Auditory Canal H S Wieder, Philadelphia —p 364
Otologic Sepsis Following Submucous Resection of Nasal Septum L C Menger, Brooklyn —p 371
Plastic Surgery of Saddle Nose M W Mootnick, New York —p 376
Tonsillectomy and Upper Respiratory Disease (Common Cold) in Adults W M Gafafer, Baltimore —p 385
Unusual Papilloma of Larynx R T Smith, Natchez, Miss —p 390
New Apparatus for Treating Singers and Public Speakers B L Bryant, Cincinnati —p 393

Maine Medical Journal, Portland

23: 93 120 (May) 1932

Observation on Management of Ureteral Calculi C N Peters, Portland —p 101
Diphtheria Immunization in Maine W L Holt, Augusta —p 109

Medical Bull. of Veterans' Adm., Washington, D. C.

8: 331 430 (May) 1932

Treatment of Diabetes Mellitus P B Matz —p 331
*Surgical Treatment of Pulmonary Tuberculosis A S Broga and E S Welles —p 351
Suicide H E St Antoine —p 369
Essential Hypertension F J Herbig —p 377
Circulatory Disturbances of Lower Extremities L C Jensen —p 381
Nail Changes in Pulmonary Tuberculosis Associated with Mental Diseases C L Whitmire —p 385
Leukocytosis in Tuberculosis C A Anderson —p 395
Dental Clinics R J Hamilton —p 397

Surgical Treatment of Pulmonary Tuberculosis—Broga and Welles state that with a skilful operator the operation of pneumolysis is attended with little discomfort or danger to the patient Many distinctly unfavorable pneumothorax cases may be converted into decidedly favorable ones as a result of the marked increase in collapse with resulting closure of cavities Pneumolysis should be resorted to as soon as it is determined that an unfavorable adhesion will stretch no further without undue pressure Delay may allow a thin-walled cavity to develop heavy walls and become highly resistant to closure, even after separation of the adhesions Also, continued stretching may cause adhesions to become tough and tendinous.

Development of fluid is to be expected. This is usually slight in amount and seldom interferes with the progress of the case. Danger from hemorrhage may be greatly reduced by slow, careful progress, by avoidance of thick adhesions, and by the use of a low dull-red cauterizing heat. Serous oozing is to be expected and is of no consequence. Only thin, string or sheet-like adhesions are suitable for cauterization. Short or thick ones may contain sizable blood vessels or even portions of lung tissue or extensions of pulmonary cavities. Also, the proximity of the cautery to the pleura together with an extensive cauterized surface may cause much annoying pleurisy.

Medical Journal and Record, New York

135: 461 504 (May 18) 1932

Experiments on Influence of Noise on Digestion, and Counteracting Effects of Various Food Agencies. D. A. Laird, Hamilton, N. Y —p 461.
Large Renal Calculi: Clinical Study. W. S. Pugh, New York —p 464
Interpretation of Leukocyte, Differential Count, and the Schilling Nuclear Shift in the Blood S. Gorsky, Philadelphia —p 468
End Results in Tonsillectomy by Electrocoagulation Due to Improved Technic. J A Haiman, New York —p 471.
Light Magic. H Goodman, New York —p 473.

135: 505-548 (June 1) 1932

Safeguarding the Industrial Worker. A. W. Hammer, Philadelphia —p 505.
One Thousand Cases of Spinal Anesthesia, Without a Death Attributable to the Anesthetic M. Weinstein and J. P. McHugh, Long Island City, N Y —p 507
Agranulocytic Angina. W. Spielberg, New York —p 515.
Septic Parotitis in Gastric Hemorrhage. I. R Jankelson, Boston —p 517.

Michigan State M. Society Journal, Grand Rapids

31: 363-436 (June) 1932

*Intracranial Injuries of Fetus F. L. Adair, Chicago —p 363
Few Skin and Mucous Membrane Lesions of Interest to General Medicine G H Belote, Ann Arbor —p 368
Behavior Problems in Children: Practical Consideration of Their Analysis and Treatment in Practice B M. Hamil, Detroit —p 373.
Intestinal Obstruction· Review of Ninety-Five Cases. H. E Veldman and F. C. Warnshuis, Grand Rapids —p 379.
Convalescent Serum Its Use in Treatment of Acute Communicable Diseases E. E. Martmer, Detroit —p. 383.
Appendicitis W. W. MacGregor, Detroit —p 386
Beneficial Effect of N-Propyl Disulphide in Polycythemia Vera Case Report. E A Sharp, E. C. Vonderheide and R. M. McKean, Detroit. —p 394.
Allonal Poisoning Case N. W. Larkum, Lansing —p 395.
Effect of Evaporated Milk on Incidence of Rickets in Infants. D. J. Barnes, Detroit —p. 397
Chyle Cyst of Mesentery Report of Case. A L Arnold, Jr., Owosso —p 399
Abdominal Operations for Femoral Hernia G. L Coan, Wyandotte. —p 401.
A Trip to Russia· August and September, 1931. R McGregor, Saginaw. —p 404.
Michigan's Department of Health C. C Slemons, Lansing —p. 409.
Victor C. Vaughan. C. H. McIntyre —p. 410

Intracranial Injuries of Fetus.—Adair enumerates the methods of prevention of brain injuries in infants thus: (1) Prenatal care by which attempts are made to bring the patient to term with the fetus in the proper position, and predetermining so far as possible the appropriate method of delivery; (2) proper management during labor, with conservative conduct of the first stage, preservation of the membranes, the prevention of violent labors by the use of uterine sedatives and anesthetics if necessary, the avoidance of too prolonged pressure on the fetal head in the birth canal or on the perineum, the recognition of signs of fetal distress and the completion of the delivery when conditions are favorable; (3) avoidance of undue occipital depression by its pressure against the pubic arch especially by vigorous attempts to protect the perineum (also avoidance of delivering the aftercoming head in breech extraction and following version by using the occipital bone as the fulcrum of a lever in rotating and delivering the head over the perineum); (4) the restriction of the use of artificial means of delivery, to strict indications on the part of the mother or fetus when favorable conditions are present; (5) the selection of the proper time and method for artificial delivery and the use of good technic, and (6) the recognition of the fact that many of the infants which appear asphyxiated and do not breathe promptly or properly are in many instances traumatized and should be treated gently and not by strenuous attempts at stimulating respiration.

Minnesota Medicine, St. Paul

15: 295-378 (May) 1932

Compulsory Sickness Insurance J. S. Gilfillan, St Paul —p. 295.
Cooperation. C. E Rudolph, Minneapolis —p 305.
Surgical Considerations of Angina Pectoris. A W. Adson, Rochester. —p 310
Aids in Diagnosis of Hip Joint Disorders G A Williamson, St. Paul. —p 312
Thrombo-Angiitis Obliterans· Report of Fifty-Two Cases. A. G. Dumas and E. T. Evans, Minneapolis —p 320
Skin Tests in Chronic Ulcerative Colitis J. C. T. Rogers and J. A. Bargen, Rochester —p 328
Obstructive Jaundice from Surgical Standpoint. W. Walters, Rochester. —p. 333.

Missouri State M. Assn. Journal, St. Louis

29: 239-286 (June) 1932

*Acute Hemorrhagic Mastoiditis Report of Case. C S. Smith, Springfield —p 239
Rehabilitation of Tuberculous Patients. G D Kettelkamp, Koch —p 241.
Pneumothorax as Home Treatment L Schlenker, St Louis —p. 245.
Cancer Survey of St Louis and St. Louis County, Missouri, 1931. C C. Little, New York —p. 249

Acute Hemorrhagic Mastoiditis.—Smith calls attention to the fact that acute hemorrhagic mastoiditis is a type in which the pathologic process is limited to the interior of the blood vessels, where septic thrombi are formed. It is characterized by a condition of sepsis with prostration and high temperature. The blood shows a steady reduction in the hemoglobin and red blood cells. The roentgenogram is negative. The treatment is always surgical. Because intracranial complications, especially lateral sinus thrombosis, tend to occur early, the operation should be performed as soon as the diagnosis is made.

New England Journal of Medicine, Boston

206: 1075-1124 (May 26) 1932

Simple and Inexpensive Method for Caring for Patients on Permanent Urinary Drainage E L Peirson, Jr, Salem, Mass —p. 1075
Gunshot Wound of Ureter S N. Vose, Boston —p 1075
Report of Unusual Case of Large Diverticulum of Bladder in Infant. E J O'Brien, Boston —p 1076
*Use of Radium and Roentgen Rays in Management of Cancers of Genito-Urinary Organs A. L Dean, Jr, New York —p 1078
*Invaginated Meckel's Diverticulum Causing Partial Obstruction of Ileum. J. C McCann, Worcester, Mass —p 1089
Suction Tonsillectomy Comments on Waring Suction Technic Z W. Colson, Lawrence, Mass —p 1093
Isaac Jadaeus and His Times. H Morrison, Boston —p. 1094.
Recent Progress in Physiology. P. G. Stiles, Boston —p 1100.

Cancer of Genito-Urinary Organs.—Dean considers the use of radium and the roentgen rays an important adjunct to surgery in the management of renal adenosarcoma and adenocarcinoma. It is probable that bladder cancers can be controlled more effectively with interstitial irradiation than by surgery alone. After irradiation the operative mortality is lower and the end-results are better. About 15 per cent of prostate cancer can be controlled by irradiation. There is a field of usefulness for irradiation in the treatment of superficial penis cancer. Beyond this, irradiation is a valuable adjunct to surgery. The treatment of teratoma testis by irradiation is so successful that surgery should be discarded except for the removal of an irradiated testis.

Invaginated Meckel's Diverticulum. — According to McCann, a survey of the literature reveals that simple inversion of a Meckel's diverticulum is a rare phenomenon He presents a review of ten cases reported in the literature, and a case of inversion in which he operated. Persistent diverticula, which are found in 2 per cent of necropsies, give rise to diverse complications. Intestinal obstruction is the most common and is produced frequently by intussusception of the intestine secondary to invagination of a diverticulum. This is the causative mechanism in 7 per cent of obstructing intussusceptions and carries an operative mortality of from 50 to 60 per cent. Simple uncomplicated inversion is rare, and in the author's case the serious complication of intussusception was probably averted by the paramesenteric location of the structure, and fortuitous surgical intervention. Chronic inflammation had agglutinated the serosal surfaces at the base of this inverted diverticulum, forming a polypus-like sac within the lumen of the ileum, which produced symptoms of partial obstruction. This case presents proof of the hypothesis long held that some polypi of the small intestine take origin from an inverted Meckel's diverticulum.

New York State Journal of Medicine, New York

32: 577-642 (May 15) 1932

The Enema: Its Use and Abuse. R. Finkelstein, Brooklyn.—p. 577.
Psychopathology and Organic Disease. S. E. Jelliffe, New York.—p. 581.
Early Medical History of Mohawk Valley. E. Kellert, Schenectady.—p. 588.
Sporotrichosis in New York State. J. G. Hopkins and R. W. Benham, New York.—p. 595.
Scarlet Fever Case-Finding. F. W. Laidlaw, Middletown.—p. 601.
Ectopic Kidney: Case. A. Strachstein, New York.—p. 603.

Psychoanalytic Quarterly, Albany, N. Y.

1: 1-189 (April) 1932

Libidinal Types. S. Freud.—p. 3.
Sense of Smell in Neuroses and Psychoses. A. A. Brill, New York.—p. 7.
Transient Hypomania. B. D. Lewin, New York.—p. 43.
Animism and Religion. G. Róheim, Budapest, Hungary.—p. 59.
Is There a Mental Hygiene? F. E. Williams, New York.—p. 113.
Outline of Clinical Psychoanalysis. O. Fenichel, Berlin, Germany.—p. 121.

Radiology, St. Paul

18: 879-1050 (May) 1932

*Irradiation in Treatment of Hyperthyroidism. G. E. Pfahler, Philadelphia.—p. 879.
Part III. Findings Observed in Gastro-Intestinal Tract. The Cole Collaborators, New York.—p. 886.
The National Institute of Health. J. E. Ransdell, Washington, D. C.—p. 942.
Teaching Radiology to Undergraduate Students. H. K. Pancoast, Philadelphia.—p. 948.
The Teaching of Radiology to Interns. J. T. Case, Chicago.—p. 957.
The Postgraduate and Graduate Teaching of Radiology. A. U. Desjardins, Rochester, Minn.—p. 961.
Statistical Study of Radiologic Teaching in Medical Schools of United States and Canada. L. J. Menville, New Orleans.—p. 967.
Radiologic Service in United States: Report by the Council on Medical Education and Hospitals, American Medical Association (Reprinted).—p. 988.
Management of Radiologic Practice in Hospitals. D. S. Beilin, Chicago.—p. 1001.
The Radiologist as a Consultant. J. F. Herrick, Ottumwa, Iowa.—p. 1011.
Electrical Definitions. Final Report of Subcommittee Number Thirteen—Radiology.—p. 1014.
Effects of Ultraviolet, Roentgen and Cathode Rays on Spores of Mucoraceae. B. J. Luyet, New York.—p. 1019.
*Diagnostic Pneumothorax: Aid in Diagnosis of Pleural Tumors. W. B. Faulkner, Jr., and E. C. Faulkner, San Francisco.—p. 1023.
Mediastinal Pleurisy: Case Reports and Roentgen-Ray Diagnosis. H. Snure, Los Angeles.—p. 1028.

Irradiation in Treatment of Hyperthyroidism.—Pfahler states that a review of the literature shows a progressively increasing recognition of the value of both roentgen rays and radium in the treatment of thyrotoxicosis. The results obtained by irradiation are equal to those obtained by operation, with less shock or risk to the patient. The basal metabolism can be gradually reduced to normal, and there is practically no danger of producing hypothyroidism. Tetany has not developed in any of the author's cases. One can assume that no harm has been done to the normal parathyroid. The author believes that not surgery, nor irradiation, nor medication can be depended on to cure all cases and no one is so much superior that it can be recommended to the exclusion of the other two. No definite rules can be laid down at present for the selection of the method for the individual patient. It is the general opinion of radiologists that in all cases which are not seriously involved by mechanical pressure, or so acute as to make delay of a month dangerous, the patients should be treated by irradiation. Irradiation and every valuable method of medication can certainly be combined to advantage. If there is no definite improvement after two or three months, surgery can still be used. The delay that always precedes operation can be used to advantage in this manner. When irradiation fails, surgery can still be used; when surgery fails, irradiation can be used. Medication and the advice of the internist are of value in all cases, but there will remain a small number in which all methods will fail.

Diagnostic Pneumothorax.—According to the Faulkners, diagnostic pneumothorax is safe, relatively easy to perform, and does not aggravate the patient's condition. It is of definite value in the differentiation of parietal pleural tumors from those within the lung and mediastinum. It furnishes essential information in the selection of chest cases for operation; and it indicates the type of anesthesia and surgical approach that will be best fitted to the individual case.

Southern Medical Journal, Birmingham, Ala.

25: 559-678 (June) 1932

Cancer of the Breast. F. J. Kirby, Baltimore.—p. 559.
Cesarean Section: Study of Twenty Years' Experience. P. W. Toombs, Memphis, Tenn.—p. 566.
Treatment of Empyema in Small Children. W. R. Moore, St. Joseph, Mo.—p. 574.
Pathologic Changes During Early Stages of Vitamin A Deficiency in Albino Rat: Preliminary Report. H. S. Thatcher and B. Sure, Little Rock, Ark.—p. 581.
Cytologic Examination of Nasal Smear in Differential Diagnosis of Allergy and Infection: Preliminary Report. I. S. Kahn and B. F. Stout, San Antonio, Texas.—p. 582.
Chorio-Epithelioma and Hydatidiform Mole: Report of Four Cases. B. T. Beasley, Atlanta, Ga.—p. 585.
Treatment of Cardiac Dyspnea. T. R. Harrison, Nashville, Tenn.—p. 591.
Roentgen Examination of Heart in Left Auricular Enlargement. F. B. Bogart, Chattanooga, Tenn.—p. 596.
Offensive and Defensive Reactions in Acute Infections of Mucous Membrane. H. J. Howard, St. Louis.—p. 602.
*Ptosis and Torsion of Gallbladder. W. R. Meeker, Mobile, Ala., and J. O. Lisenby, Atmore, Ala.—p. 609.
*Blood Picture in Sickle Cell Anemia. L. W. Diggs, Memphis, Tenn.—p. 615.
Contact Dermatitis and Eczema: Report of Nine Cases. H. J. Rinkel, Oklahoma City.—p. 621.
Personality Pathology. S. R. Roberts, Atlanta, Ga.—p. 628.
Recurrent Affective States: Their Differentiation from Psychoneuroses. L. B. Hohman, Baltimore.—p. 635.
Colossal Emphysema of Upper Extremities: Foreign Body in Lungs. E. W. Carpenter, Greenville, S. C.—p. 640.
Receptacle for Obtaining Specimens of Urine from Infants and Untrained Children. H. Hailey, Atlanta, Ga.—p. 640.
Observations on Malaria Incidence in Some Unsanitated River Villages in the Republic of Panama, with Especial Reference to Proposed Construction Projects in Canal Zone. H. C. Clark and W. H. W. Komp, Ancon, Panama Canal.—p. 642.
Therapy of Chronic Malarial Splenomegaly. M. Ascoli and U. Diliberto, Palermo, Italy.—p. 647.
Malaria Control Work in West Africa. M. A. Barber, New York.—p. 649.
Malaria Control and Anopheles Control Measures of Past and Future. J. A. LePrince, Memphis, Tenn.—p. 651.
Malaria in Mississippi and Adjacent States. F. L. Hoffman, Wellesley Hills, Mass.—p. 657.
Screening in Sharkey County. A. K. Barrier, Rolling Fork, Miss.—p. 662.
Public Health a Business Proposition. H. W. Stanley, Dallas, Texas.—p. 665.

Ptosis and Torsion of Gallbladder.—According to Meeker and Lisenby, cholecystoptosis results primarily from congenital anomalous attachments of the gallbladder. Further pathologic changes are usually dependent on ptosis. The most serious complication that can happen to a floating gallbladder is that of complete torsion. A case of torsion observed by the authors illustrates the main features of this condition exemplified in the group of twenty-five reported cases: (1) previous history of "bilious" attacks; (2) the failure of preoperative diagnosis; (3) the age and sex, elderly females; (4) the sudden onset and picture of acute condition of the abdomen; (5) the gross pathology, a greatly enlarged freely floating pedicled gallbladder of purplish black color, thickened edematous walls, content of bloody bile and clots and no stones present, and (6) easy cholecystectomy with complete recovery.

Blood Picture in Sickle Cell Anemia.—Sixty-four cases of sickle cell anemia reported in the literature and ten cases observed in Memphis are analyzed by Diggs in regard to the blood picture. The characteristic features of the blood picture in active sickle cell anemia are (1) the presence of sickled cells in moist preparations; (2) signs of red blood cell destruction (poikilocytosis, degenerating forms, microcytes, increased serum bilirubin, negative direct van den Bergh reaction and positive indirect reaction; urobilinuria, phagocytosis of erythrocytes by large mononuclears), and (3) signs of increased regenerative activity on the part of the bone marrow (megaloblasts, intermediary forms, nucleated red blood cells, nuclear fragments of all types, diffuse basophilia, macrocytes, increased reticulocytes, leukocytosis with a shift right and left, increased platelets). Sickling without anemia, hemolytic anemia without sickling, or secondary anemia in association with the sickle cell trait are to be distinguished from true sickle cell anemia. Typical sickled cells, although striking and unmistakable in fixed smears and fresh moist preparations from some cases, are the exception rather than the rule. The average red blood cell in sickle cell anemia is smaller than normal. The cell volume is decreased out of proportion to the decrease in the red blood cell count and hemoglobin. The color index is variable but usually below 1. The erythrocytes in sickle cell anemia are more resistant to hypotonic solutions of sodium chloride than normal.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below Single case reports and trials of new drugs are usually omitted

British Journal of Dermatology and Syphilis, London

44: 233 296 (May) 1932

The Senear Usher Type of Pemphigus J T. Ingram —p 233
Pityriasis Rosea G H. Percival —p 241
Successful Inoculations of Semen of Latent Syphilitic Patients. G Kertesz and V. Goldner —p 253.
Notes on a Case of Colloid Degeneration of Skin (Colloid Milium). J. M. H. Macleod, J. E M. Wigley and I. Muende —p 257.

British Journal of Physical Medicine, London

7: 21-36 (May) 1932

*Ultraviolet Treatment of Miners' Nystagmus, with Notes of Six Cases F O'Sullivan —p 23
Cure of Incapacitating Chronic Arthritis with Pistany Mud. L Schmidt. —p 25.
Spas and Spa Treatment in Europe. M. B Ray —p 26

Ultraviolet Treatment of Miners' Nystagmus.—The lamp O'Sullivan uses in the treatment of miners' nystagmus is the quartz mercury vapor type, in preference to the carbon arc. The patient starts with three minutes of exposure, at 1 meter, increasing daily up to five minutes, and later to fifteen minutes, for a period of five or six weeks if necessary. The first sign the author has observed, when carrying out treatment, and which encouraged him to persevere, was that in all cases the conjunctival hyperemia observed in most cases of early miners' nystagmus cleared up very quickly. In nearly all cases under treatment, the patients were back at work within eight weeks, with little or no symptoms or physical signs The ultraviolet irradiation was usually given as a general body bath. A few patients were treated by short local exposures, the patient wearing no goggles but keeping the eyes closed. Ultraviolet irradiation alone will not give immediate benefit, so long as some underlying focus of infection is allowed to persist. But in cooperation with other remedial measures, it exerts a definite curative influence on miners' nystagmus The author reports six cases of miners' nystagmus treated successfully by ultraviolet irradiation.

British Journal of Radiology, London

5: 385 480 (May) 1932

*Treatment of Chronic Myeloid Leukemia A Piney and Jean S Riach —p 393.
Postmortem Report on Case of Chronic Myelogenous Leukemia Treated by Radiation R Ogilvie —p. 428.
Quality and Significance of Scattered Radiation Produced in Water Subjected to Beams of Roentgen Rays and Gamma Rays W. J Rees and L H. Clark —p 432
Action of Radium D, E and F with Colloidal Bismuth on Growing Tumors A G. C. Taylor —p 446.
Case of Occult Tail R J Reynolds —p 457
Some Experiments in Projection of Splenoidal Sinus Through Orbit. F. Hernaman-Johnson —p. 458
Thoracic Fibroma. Death from Gastric Carcinoma: Case. A J H Iles. —p 460.

Treatment of Chronic Myeloid Leukemia.—In the treatment of chronic myeloid leukemia, Piney and Riach practice preliminary roentgen exposure of the long bones, followed by irradiation of the spleen This produces an even greater fall of abnormal cells than is the case if the spleen alone is treated. It is usual to treat persons with chronic leukemic myelosis until the blood picture is fairly satisfactory and the patient is feeling well; then it is often thought to be sufficient to instruct the patient to report again if at any time he does not feel in good health. It is generally found that, when the patient returns complaining of malaise, the characters of the blood picture have gravely deteriorated and further treatment is essential. The authors were particularly fortunate in two of their cases, since it was possible to examine the patients' blood at least once a week. It was found that the leukocytes, and particularly the abnormal forms, gradually rise from the level to which they had been reduced by treatment, and that this increase continues slowly but persistently for several weeks, or even months, before the patient feels at all unwell. Furthermore, during this period of deterioration of the blood picture, no ordinary clinical signs of the progress of the malady can be detected. When the number of leukocytes rose to 60,000 or 70,000 per cubic millimeter the treatment was repeated, even though the patient made no complaint of ill health. The literature contains many statements to the effect that each relapse is more difficult to treat satisfactorily than was the preceding attack. This is probably due to the excessively long intervals between the courses of treatment. This, of course, is inevitable if irradiation is undertaken only when the patient notices some signs of the disease. The authors contend that it is essential to observe the blood picture at very short intervals throughout the patient's life, and to undertake treatment in early hematologic relapses before the clinical relapse has manifested itself.

Edinburgh Medical Journal

39: 285 348 (May) 1932

*Studies on Blood and Tissue Reactions I Notes on Technic of Blood Examination W F Harvey and T D Hamilton —p 285.
*Genesis of Blood Platelets C H Watson —p 311
Treatment of Pernicious Anemia with Campolon R M Murray-Lyon. —p 328

Blood and Tissue Reactions.—Harvey and Hamilton describe experiments in which they demonstrated that there is not a large error in making a single leukocyte total count provided the necessary precautions are taken The differential cell count on a well made, and to a surprising extent on an ill made, film is significantly valid for diagnostic purposes. There is evidence of long-wave diurnal oscillation of leukocyte numbers and proportions, but not sufficient evidence of a superimposed periodic short-wave type of fluctuation. All sorts of factors, such as sleep, posture, heat and cold, muscular exercise, locality of examination, digestion and simple ingestion may be regarded as traumas and may produce leukocytic variation of greater or less duration and may combine to enhance or to mask the variation due to any one factor singly.

Genesis of Blood Platelets.—According to Watson, the reticulocytes are the least prone to fragmentation of all the erythrocytes The erythrocytes make their exit from the circulating blood mainly by a process of fragmentation By a variety of processes, which cause partial laking, the author shows that the erythrocytes of rabbits which have been damaged in vitro by the injection of phenylhydrazine contain a granular material similar in every respect to the granular material of platelets He shows that the damaged erythrocytes have a marked tendency to fragment, also that under certain conditions the fragments have a basophilic ground-substance in which is variously distributed pink-staining granular material The fragments of effete or damaged erythrocytes correspond in every detail to the bodies known as blood platelets

Indian Medical Research Memoirs, Calcutta

No **23:** 1 378 (March) 1932

The Life Line of the Thyroid Gland R McCarrison and K B Madhava —p 3

International Journal of Psycho-Analysis, London

13: 1-176 (Jan-April) 1932

Psychoanalysis of Primitive Cultural Types G Roheim —p 1

Journal of Laryngology and Otology, Edinburgh

47: 297-368 (May) 1932

*Indications for Radical Operation in Chronic Middle Ear Suppuration S H Mygind —p 297
*Some Postoperative Results of Radical Mastoid Operation in Children Postoperative Otorrhea N Asherson —p 317

Chronic Middle Ear Suppuration.—Mygind believes that the greatest difficulty in the treatment of chronic middle ear suppuration lies in the treatment of children, in whom radical operation, as also with unintelligent patients, generally gives unsatisfactory results. This also holds good for the simple resection or preferably the Bárány partial resection, which, when obliged to operate, one often has to make do. In such cases it is not enough to provide only for conventional adenotomy. Children should be submitted also to comprehensive general medical examination. Their hemoglobin, their Wassermann reaction, their Pirquet reaction, their rickets, their family predisposition to ear trouble, catarrhs and tuberculosis, the state of their homes and their diet must all be investigated, and all energy directed in the right direction in order to invigorate their general well being. This demands much labor and a lengthy stay in the hospital, often accompanied by Finsen light treatment, baths and open air treatment. But it is here that action must be taken, for it is often in childhood *that middle ear disease begins its fateful course even if it is* much later on that it first shows itself in earnest, often as a serious inconvenience, sometimes as invalidism and, in certain, generally sudden and dramatic cases, terminating fatally.

Postoperative Otorrhea.—Asherson tabulates the results in 100 consecutive cases of the radical mastoid operation and conservative mastoid operation in children. In a purely tympanic infection, the mastoid being healed, with no granulations in the tympanum, ionization with zinc sulphate will effect a rapid cure. Attention to the nasopharynx is essential. Thus adenoids, septic tonsils and sinusitis require attention. This is an essential part of the treatment. When granulations occur in the tympanum they should be cauterized with 50 per cent solution of silver nitrate, and after a few days 1 per cent iodine powder should be insufflated regularly. Hypertrophied granulations or polypi require removal by scraping, snaring or curetting. The base should be cauterized with silver nitrate. This applies to the mastoid part of the excavation also. If there is much bone disease still present, or any atresia of the meatus present, further treatment by operation is indicated and the infective bone disease should be eradicated. Among the accessory methods to be attempted in highly resistant cases are heliotherapy, ionization with very weak solution of silver nitrate or, after thorough cleansing, packing the cavity with strips of gauze impregnated with bismuth iodoform paraffin paste. The discharge persisting after the radical mastoid operation is usually an extremely chronic one, and reaction to treatment is disappointing in a large majority of cases, and further operation is usually called for unless the site of origin is localized to one or two definite spots.

Journal of State Medicine, London

40: 249-310 (May) 1932

Social Burden of the Rheumatic Diseases. D. M. Connan.—p. 249.
*Prevention and Treatment of Industrial Rheumatism. M. B Ray.—p. 255.
Organization of Treatment for Industrial Rheumatism. A. R. Neligan.—p. 274.
Methods for Determination of Carbonaceous Waste Gases and Soot in Air. J. Hirsch.—p. 300.

Prevention and Treatment of Industrial Rheumatism.—Ray calls attention to the fact that in dealing with industrial rheumatism it is of the greatest importance that patients should be able to obtain treatment at the earliest possible moment after the first signs of the malady. If, in consequence of this, time has to be lost in attending an institution, treatment will be deferred with the grave risk of complete incapacity. Few complaints show better results than fibrositis or muscular rheumatism if treated early enough. In establishing the clinic for rheumatism, one of the main objects of the British Red Cross Society was the provision of evening treatment for men and women after working hours. Analysis of the social service records of those patients who have finished their treatment during the year 1931 shows that 40 per cent of the 1,012 men and 51 per cent of 1,463 women remained at work during the period they were attending the clinic. In industrial rheumatism, preventive measures are mainly applicable to the conditions of employment. Dampness and chills are a fruitful source of much invalidity from muscular rheumatism and fibrositis. Workers who are exposed to continual wetting and subsequent chilling should be provided with adequate drying rooms and opportunities for changing into dry clothing. In case of joint disabilities, so many of which are connected with certain trades, an endeavor should be made, when practical, to afford a change of occupation when signs of arthritis appear. It is fully recognized that in the majority of instances this is impossible. Timely treatment by physical methods may do much to prevent any further development, but it must be in the earliest stages. Once bony changes have taken place, little in the way of a permanent cure can be effected. As regards the individual himself, the ordinary rules of hygiene should be strictly followed. Septic teeth and tonsils should be dealt with. In the type of patient who is predisposed to rheumatism, much may be done by the use of baths to tone up the skin and render it less sensitive.

Journal of Tropical Medicine and Hygiene, London

35: 129-144 (May 2) 1932

Intestinal Bilharziasis in St. Kitts, B. W. I. S. B. Jones.—p. 129.
Results of Successive Bites of an Infected Tsetse Fly. J. F. Corson.—p. 136.
Diabetes Mellitus with Anarthria and Signs of Irritation of Seventh Nerve Nucleus: Case. E. C. Spaar.—p. 137.

Lancet, London

1: 1027-1078 (May 14) 1932

*"Fallen Idols" The Case of Appendicitis. J. Berry.—p. 1027.
*Mode of Action of Vitamin D: The "Parathyroid" Theory: Clinical Hypervitaminosis. L. J. Harris.—p. 1031.
Treatment of Infections of Urinary Tract by Ketogenic Diet. H. Cabot.—p. 1038.
Meningitis and Septicemia Due to Morgan's No. 1 Bacillus. R. Gittins and J. C. Hawksley.—p. 1040.
*Cerebrospinal Fluid Pressures in Syphilis. T. F. Hewer.—p. 1042.

Appendicitis.—Berry does not find any evidence for the statements that appendicitis is more common than it used to be and that the type of infection has become more virulent, and he does not believe that they are true. That the disease is recognized and diagnosed more frequently, and that active treatment is adopted far more often, there can of course be no shadow of doubt. That deaths are more common now than formerly is apparently an undoubted fact. The author believes that there should be introduced a little more sanity into the present-day treatment of acute appendicitis, a little more discrimination and judgment in the choice of operation and when and how it should be performed when it is really necessary, a little less reliance on the hard-and-fast rule, adopted by so many, of operating at any and all stages—a rule so easy to follow but often so disastrous to the patient. He has spent half a century in watching and studying appendicitis in all its various moods and forms. He has seen nearly every form of treatment from the simplest to the most heroic. Looking around him, he is inclined to say that the prevalent surgical treatment of appendicitis, though still holding the position of an idol, is an idol whose pedestal is beginning to totter.

Mode of Action of Vitamin D.—Investigations made by Harris on hypervitaminosis have substantiated the theory that the characteristic mode of action of vitamin D is to permit an increased "net absorption" of calcium and/or phosphate from the intestine, tending to raise the level of the blood calcium and/or phosphate: the latter rise automatically brings about increased calcification in sites provided with the "bone" or "calcifying" enzyme, phosphatase. This action is apparent whether the vitamin is fed in suboptimal amounts, in doses approaching the optimum, or in moderate excess. Hypervitaminosis thus stands in logical contrast with rickets (hypovitaminosis or avitaminosis). In the latter there is deficient net absorption of calcium and/or phosphate, hence hypocalcemia and/or hyperphosphatemia, and resulting insufficient calcification; while in hypervitaminosis there is a potential increase in net absorption, hypercalcemia and/or hyperphosphatemia, and excessive calcification in sites such as the growing end of the bone, in teeth, and also in certain soft tissues such as the kidney and aorta, which are also richly provided with the "bone" enzyme. The indiscriminate use of parathyroid extract clinically for cases of suspected calcium deficiency is to be deprecated, most definitely in such conditions as infantile tetany, osteomalacia and late rickets; for although it will succeed in raising a low blood calcium, it merely aggravates the underlying metabolic error causing loss of minerals to the body, and still further depleting the already impoverished bones. Vitamin D, on the contrary, rectifies hypocalcemia (or hypophosphatemia) by ensuring an adequate utilization of the food calcium (and/or phosphorus). The ill effects in hypervitaminosis are the same in man as in experimental animals. Clinical experience shows that for the human being the toxic overdose of viosterol is not far removed from the optimal (not "minimal") curative dose. The correct dosage should therefore be strictly adhered to.

Cerebrospinal Fluid Pressures in Syphilis.—In a series of 313 cases of syphilis in which he made routine examinations of the cerebrospinal fluid, Hewer found that hypertension was the least common abnormality and that there was no apparent relation between the degree of pathologic change and the pressure of the fluid. In the series there were twenty cases of clinical neurosyphilis. Ninety-two presented pathologic fluids, but only five showed pressures in excess of 20 cm. of fluid, and one of these was certainly due to congestive heart failure. These figures contrast strikingly with those presented by other authors and are in entire disagreement with the constantly repeated textbook opinion that hypertension is one of the earliest signs of syphilitic involvement of the central nervous system.

Practitioner, London

128: 465-568 (May) 1932

*Relations Between Eye Disease and General Medicine. E. Clarke.—p. 465.
*Iritis. W. S. Duke-Elder.—p. 471.
*Cataract. R. H. Elliot.—p. 481.
Certain Problems of Refraction in Relation to General Practice. A. Rugg-Gunn.—p. 493.
Treatment of Pneumonia. A. H. Holmes.—p. 505.
Dietetic Facts, Fads and Figments. A. Abrahams.—p. 519.
Oral Treatment of Diabetes Mellitus: Explanation of the Synthalin System. A. T. Todd, W. P. Brinckman and J. R. E. Sansom.—p. 531.
*Chronic Coli-Bacillemia and Its Manifold Consequences. P. Desgeorges.—p. 543.
Observations on Perforated Gastric and Duodenal Ulcers. D. J. Harries.—p. 554.
Magnesium Sulphate in Otorrhea. E. Watson-Williams.—p. 556.

Eye Disease and General Medicine.—Clarke believes that one of the most subtle associations, perhaps the commonest for harm between the eye and the body, is revealed in eyestrain. Every one knows that headaches may be caused by eyestrain, but even now it is not generally recognized how many complaints may owe their origin to it. Ocular migraine, dyspepsia, insomnia, general lassitude or malaise may be entirely due to eyestrain—or eyestrain may be the chief cause. The reason this is so subtle is that more often than not the eyes are not suspected. Vision is good and the patient is quite unaware that this good vision is obtained at a big expense of nervous energy. Small errors of astigmatism and anisometropia can be unconsciously corrected, and this means a constant drain on the nervous energy; impulses are passing from the brain to the ciliary muscle during all the waking hours. In the robust and the young, this may not have any apparent harmful effect; but in those who are weakly or who have a delicate nerve organization or whose "nerve balance" is easily upset, this constant drain may produce all sorts of symptoms. It must be remembered also that, in addition, this eyestrain produces reflex irritation and loss of resisting power both locally and generally, and lowered vitality.

Iritis.—Duke-Elder calls attention to the fact that to a large extent the term "iritis" is a misnomer. Anatomists have long been accustomed to divide the uveal tract into three parts (the iris, the ciliary body and the choroid) and following them clinicians have spoken of iritis, cyclitis and choroiditis. It must be remembered, however, that these descriptive terms tend to convey an impression of localization which is rarely justified in the spheres of physiology or pathology. The eye is limited by a tough and relatively impermeable sclerocorneal coat, and within this coat all the tissues are bathed with the common intra-ocular fluid, in which a very free diffusion of toxic materials is permitted, so that the tendency is for the eye to be involved and respond as a whole even to an isolated lesion. Moreover, the vascular arrangements, although terminally divided into an anterior and a posterior system, are richly supplied with anastomoses, and the nerve supply is identical, so that both in its normal metabolism and in the derangements of its functions the uveal tract tends to act as a unified whole, wherein if one part becomes inflamed, the remainder tends to suffer simultaneously. Probably to a large extent depending on the arrangement of the blood vessels, however, inflammatory disturbances do tend to localize themselves as an anterior or posterior uveitis, and in the former category, although there is probably never an iritis without a cyclitis, the large group of cases in which an inflammation of the iris dominates the clinical picture justifies the use of the term iritis. The greatest interest and most important aspect of cases of iritis are their etiology, for on this hinges their prevention, their rational treatment, and the undertaking of precautions against recurrences which too frequently bring disasters in their train. Unfortunately the etiology of iritis is a question about which much is obscure. At the commencement, two types may be differentiated: (1) those relatively rare and obvious cases wherein an infection is introduced into the eye by a perforating wound or ulcer, and (2) the great majority of cases, wherein the causative agent enters through the blood stream. In the latter group of cases the inflammation may be set up by the entrance either of micro-organisms or of toxic materials into the eye. In a small minority of cases in which actual tuberculosis or gummatous nodules are present, the type and method of infection is obvious; but the average case of iritis presents a nondescript, nonspecific clinical picture and can only be assessed as a member of a heterogeneous group in which scientific classification is as yet quite impossible.

Cataract.—According to Elliot, the earlier a mature cataract is operated on the better. The patients are usually elderly, and though even extreme old age does not constitute a bar to the operation, every year younger is an advantage at a time of life when deterioration is much more rapid than in the earlier decades. No patient should be allowed to drop his ordinary activities and to sink into listlessness. Once a patient reaches the stage when he can no longer get about comfortably, or when he cannot read, write and carry on his usual occupations, he should be operated on without delay. To the skilled operator, immaturity of cataract presents no real difficulty. The fact that a cataract is commencing in the opposite eye is an added reason for early operation on the first one. The exact time for operation demands careful thought. The guiding principle is to get the first eye operated on and to give it time to become strong and useful before the second becomes too blind to be serviceable. This necessitates operating on immature cataracts in those cases in which the second eye follows the first after a short interval. Though a patient has a good result in one eye, the second should be operated on if cataractous, for the following reasons: 1. The sight of the first eye may be lost by injury, retinal hemorrhage, glaucoma, or other dangers common to the old; when sight is concerned, no risks should be taken and every vestige should be conserved; therefore, the margin of safety must be made as wide as possible. 2. Binocular vision is much better than monocular, and much safer. 3. The longer the operation is put off, the greater the age of the patient, and, therefore, the greater the risks of trouble.

Chronic Coli-Bacillemia.—Desgeorges states that chronic coli-bacillosis is generally looked on as a disease which is more troublesome than serious. By reason of its refractoriness, the ease with which it recurs, and the multiplicity of the disturbances to which it gives rise, the author feels justified in asserting that it is, on the contrary, a formidable disease. It is serious because it plays a foremost part in the causation of pathologic conditions as difficult to cure as pyelitis and chronic cystitis, and as painful and subject to complications as cholecystitis and cholelithiasis. It is serious because of its frequent disastrous effects on the general health and the nervous system.

Quarterly Journal of Medicine, London

1: 213-360 (April) 1932

*Relative Value of Some Diphtheria Prophylactics, and Principles of Active Immunization Against Diphtheria. S. F. Dudley.—p. 213.
Observations on Disturbance of Metabolism Produced by Injury to Limbs. D. P. Cuthbertson.—p. 233.
*Spontaneous Overbreathing Tetany. R. A. McCance.—p. 247.
*Mobility of Abdominal Viscera. A. E. Barclay.—p. 257.
*Electrocardiogram in Diphtheria. S. Alstead.—p. 277.
Study of Total Exchange of Water, Sodium, Potassium and Nitrogen in Epilepsy. F. B. Byrom.—p. 289.
Undulant Fever in Northeast of Scotland. J. Smith.—p. 303.
Some Observations on Persistent Bradypnea in a Case of Postencephalitic Parkinsonism. Marion Brown and C. G. Imrie.—p. 319.
*Treatment of Obesity: Comparison of Effects of Diet and Thyroid Extract. D. M. Lyon and D. M. Dunlop.—p. 331.
Diabetic Coma: Significance of Alteration in Blood Urea. A. Lyall and A. G. Anderson.—p. 353.

Diphtheria Prophylactics.—From the evidence in the literature and from experiments at Greenwich Hospital School, Dudley believes that three fortnightly doses of a reliable toxoid, if given to only half the population under 10 years of age, would reduce the incidence and mortality from diphtheria to an extent that would make active immunization a sound financial investment, besides being of benefit to the public health

M. Roberts Field Library

If as many as 80 or 90 per cent of children under 10 could be maintained Schick immune, he believes that, for practical purposes, diphtheria would vanish within five years.

Spontaneous Overbreathing Tetany.—McCance calls attention to the fact that certain persons are peculiarly susceptible to the changes of reaction brought about by overbreathing. Tetany may develop in these persons with scarcely noticeable overbreathing and before any definite chemical change can be detected. Investigations on two such persons are described. Many of the cases of so-called sporadic tetany in adults may be of this type. Diagnosis is easily confirmed by making the patient overbreathe. This procedure is harmless and demonstrates at once to the subject the cause of the attacks and how to avoid them. Experiments performed by the author with epinephrine in one case suggest that this drug has no direct action in producing tetany, but that it may do so by stimulating hyperventilation. Associated with the tetany, one case showed a reduction of the T waves in the first and second leads of the electrocardiogram.

Mobility of Abdominal Viscera.—Barclay records a study of the effect of posture and of forced respiration on the abdominal viscera. Composite pictures are reproduced showing the displacements and distortions. These indicate that in normal subjects the abdominal organs are not fixed and that they have a wider range of movement, in relation both to the abdominal wall and to each other, than might be expected. The illustrations record the mobility and indicate the "fluid" character of the anatomy of the abdominal viscera.

Electrocardiogram in Diphtheria.—Alstead states that the electrocardiograph is a valuable means of estimating the severity of diphtheritic myocarditis and the only means of accurate diagnosis of conductive lesions in the majority of cases. Though a large proportion of cases in which the patient has mild myocarditis are undetected by clinical methods, such cases become comparatively rare in the moderate and severe types of diphtheria. Hence for practical purposes the character of the heart sounds is usually a sufficiently accurate guide to the state of the myocardium. The clinical signs most closely related to the electrocardiographic observations are those dependent on cardiac function; e. g., response to effort and the trend of the pulse rate. The significance of persistently "abnormal" heart sounds can be safely estimated by the electrocardiogram and the patient's response to effort, considered together. Of the various physical signs in the heart taken to indicate myocarditis in diphtheria, the most valuable as confirmed by simultaneous electrocardiographic records are: (1) progressive softening of the first heart sound at all areas, especially the mitral and aortic areas; (2) the character of the cardiac impulse at the apex and movement of the apex beat to a position farther away from the midline, and (3) splitting of the first mitral sound producing a triple rhythm. Serial electrocardiographic records show that, in a considerable proportion of cases, with the onset of diphtheritic paralyses there is a simultaneous relapse in the condition of the heart. This fact is much less frequently observed when clinical methods alone are employed. The severity of the cardiac lesion is usually proportional to the severity of the toxemia when specific treatment is commenced. There are, however, cases in which neither the clinical nor the electrocardiographic abnormalities are sufficient to account for the state of impending circulatory collapse that is often seen in diphtheria. Although gross degeneration of the heart muscle and specialized conducting system are frequently shown by the electrocardiograph during diphtheria, these lesions are mostly transient. Complete heart block is by far the commonest lesion associated with circulatory collapse ending fatally, but complete block is probably only a contributory factor in a condition characterized by widespread changes in the circulatory system. Fifteen fatal cases are classified by the author according to the "early" and "late" types described by Schwentker and Noel. Except in the event of complete heart block, no reliance can be placed on the electrocardiographic observations in diphtheria in assessing prognosis.

Treatment of Obesity.—Lyon and Dunlop studied the reduction in weight in thirty-five cases of different types of obesity. All the subjects, including marked endocrine cases, lost weight while dieting. It was found that the rate of weight loss bears a definite relation to the caloric value of the diet: the smaller the diet, the more the loss. The rate of loss is greatest at first and decreases as the diet is continued. If the total caloric intake is kept constant at 1,000, the weight loss is greatest when the carbohydrate of the diet is low. It was found that 9 grains (0.6 Gm.) of thyroid extract is required in order to produce a loss of weight equal to that caused by the standard 1,000 calory diet. The effect of the thyroid is proportionate to the dose given. The basal metabolic rate for the series of cases was usually within normal range on admission. The rate usually fell during the period of undernutrition and was raised about 20 points during the administration of thyroid extract. The loss of weight when the patients were taking low diets appears to be due to removal of fat and water from the body, but when thyroid is given the utilization of fat represents a smaller fraction of the weight loss, while the proportion of water removed from the body is greater, and some of the loss may be due to a negative protein balance.

South African Medical Assn. Journal, Cape Town

6: 251-284 (April 23) 1932

Milk Supplies, with Especial Reference to Legislation. G. H. Gunn.—p. 251.
Pneumonia. J. R. Bosman.—p. 257.
Congenital Hypertrophic Pyloric Stenosis. J. A. Douglas and B. G. v. B. Melle.—p. 259.
Surface Disposal of Night-Soil from Buckets. R. Friel.—p. 263.
Note on Deterioration of Tinctures of Digitalis. J. W. C. Gunn.—p. 264.
Management of Premature Baby. D. D. Dunn.—p. 264.
Pyuria in Childhood, with Especial Reference to Treatment. S. Heymann.—p. 269.

Paris Médical

1: 473-512 (June 4) 1932

Infectious Diseases in 1932. C. Dopter.—p. 473.
Facial Paralysis and Poliomyelitis. V. de Lavergne, E. Abel and P. Kissel.—p. 488.
Disease of Nicolas-Favre. P. Ravaut and R. Cachera.—p. 495.
Nephrotropic Viruses. J. Troisier.—p. 502.
*Clinical Forms of Rat-Bite Fever. Costedoat.—p. 505.

Clinical Forms of Rat-Bite Fever.—Costedoat describes the three principal forms assumed by rat-bite fever in European climates. The common form starts with an attack of fever about fifteen days after the rat-bite is received. At the same time the region of the bite (usually the hand) becomes inflamed and a lymphangitis ending in epitrochlear or axillary adenitis develops. An eruption of red macules or papules of lentil size chiefly on the affected members, but sometimes on the whole body, accompanies the febrile attack. The fever recedes suddenly after about three days. These febrile attacks, accompanied by eruption and inflammation, recur at intervals of a few days for months or a year unless specific treatment is given. Local symptoms sometimes precede but never follow the rise in temperature. The eruption may not appear until the fourth attack and is of variable nature; sometimes it appears as papules, sometimes it resembles the erythema of measles and rarely it is petechial. The muscular pain is severe and does not disappear entirely during the remissions. There is a moderate leukocytosis and the proportion of polymorphonuclear cells is sometimes increased to 95 per cent. The disease is easily differentiated from common local infection, erysipelas, syphilis, measles and so forth. Positive diagnosis is easily made when all symptoms exist, but valuable aid is furnished by etiology, therapeutic test and laboratory examination. A rat-bite is necessary for the development of the disease. Immediate response to an injection of neoarsphenamine is a diagnostic aid, although cure requires a long series of injections. The best laboratory procedure for isolating the spirochete of rat-bite fever is subcutaneous inoculation of 2 cc. of the patient's blood (taken during one of the first febrile attacks) into a mouse. The spirochetes can be recovered from the blood and organs of the animal in from one to four weeks. A localized form of rat-bite fever in which the eruption or fever or both may be absent has been encountered. Less rare than the localized form is the septicemic form in which local manifestations are slight or lacking while the general symptoms are those of the common form. The septicemic form may resemble an eruptive fever or it may be characterized by the intensity of the pains or, as shown in a case report, a period of recurrent fever without skin lesions may be followed by a sort of erysipelas of the head and upper limbs. Differentiation of rat-bite fever without eruption from relapsing fever, icterogenic spirochetosis and other recurrent fevers is discussed.

1: 513-524 (June 11) 1932

*Staphylococcic Pott's Disease (Staphylococcic Spondylitis) in Adults. Carnot.—p. 513.
Acute Malignant Endocarditis Grafted on Congenital Subaortic Stricture. E. Sergent, C. Launay and F. Imbert.—p. 520.
Calcium Chloride in Cardiac Disturbances. S. Vialard.—p. 523.

Staphylococcic Pott's Disease (Staphylococcic Spondylitis) in Adults.—Carnot reports and discusses two cases of staphylococcic spondylitis in middle-aged men. The condition so strongly resembled Pott's disease that he designates it by that name in the title. In the first case, after a long series of staphylococcic manifestations, certain osseous localizations persisted with prolonged suppuration of one finger and the sternum and above all severe destruction of the bodies of several thoracic vertebrae, resulting in kyphosis. In the second case, multiple staphylococcic furuncles over a long period were followed by a staphylococcemia, which was apparently cured by bacteriophage but was followed soon afterward by vertebral spondylitis with destruction of the anterior part of the body of the eleventh and twelfth thoracic vertebrae with gibbosity and radicular pains and a congestive abscess in the lumbar region. The case terminated fatally, as frequently happens in staphylococcic spondylitis affecting the vertebral bodies. Chronic staphylococcic spondylitis in mature persons, evolving like Pott's disease, is much less well known than the acute vertebral osteomyelitis of childhood or adolescence. Clinically it is characterized sometimes by suppuration, sometimes by nervous disturbances, and sometimes by gibbosity. The abscess formation which occurs in most cases is described; it may be extrarachidian or intrarachidian. The nervous disturbances may appear as pseudorheumatic pains, lumbago, or vertebral rheumatism. Some cases present the form called vertebral epiphysitis of adult growth; sometimes spinal cord lesions occur. The principal symptom, gibbosity, often reminding one of Pott's disease, may develop suddenly or gradually. It occurs only in spondylitis of the vertebral bodies; spondylitis of the lamina does not produce it. The author says the etiology of chronic staphylococcic spondylitis with its syndrome of abscesses, radiating rachidian pain and gibbosity often cannot be established even by roentgenography; an anamnesis of multiple staphylococcias or the finding of staphylococci in pus from an abscess is necessary to make a definite diagnosis. Because of the prolonged evolution that often characterizes this disease, one always feels some uneasiness for the future despite immobilization, surgery and vaccines.

Presse Médicale, Paris

40: 885-900 (June 4) 1932

Alimentary Hypoglycemia. M. Labbé, R. Boulin and M. Pétresco.—p. 885.
Postvaccination Thrombophlebitis of Right Arm. Desmarest, A. Alivisatos and C.-N. Alivisatos.—p. 887.
*Angina Pectoris Due to Anaphylactic Shock. A. Dumas.—p. 889.

Angina Pectoris Due to Anaphylactic Shock.—Dumas thinks that anaphylactic shock may be added to the list of conditions, such as effort and emotion, productive of the coronary spasm that causes an attack of angina pectoris. He does not think that the shock alone causes the disease, but the coronary lesion is not sufficient to explain the spasmodic nature of the disease and a condition productive of spasm is necessary to bring on the attack. In anaphylactic shock there is a sudden drop in arterial tension, which in persons whose intramyocardial circulation is difficult, because of a more or less discrete coronary lesion, may explain an attack of angina. The author reports two cases of angina pectoris in which the anginal attacks appeared to be linked to digestive hemoclasia in individuals predisposed by a more or less marked hepatic insufficiency. In cases of acute coronary disease the coronary thrombosis or coronary inflammation is sufficient to cause attacks of angina without intervention of a spasm. It is rather in the frequent chronic coronary inflammation of atheromatous nature sometimes discovered at necropsy in persons who never experienced attacks of angina pectoris that spasm plays an important part. In these cases the spasm alone may be considered responsible for the disease, because in the absence of spasm the anginal attack might not occur despite the coronary atheroma. Simple alimentary prescriptions based on a precise interrogation and minute observation may protect the patient from the dreaded attacks.

Semaine des Hôpitaux de Paris

8: 311-342 (May 31) 1932

Syphilis and the Renaissance. Laignel-Lavastine.—p. 311.
*Mesenteric Cysts in Nurslings. A. Martin.—p. 323.
Talipes by Paralysis of Triceps: Transplantation of Peroneus Muscles and Tibialis Posticus on Calcaneum. R. Ducroquet.—p. 326.
Acute Appendicitis in Children. J. Armingeat.—p. 332.
Acute Osteomyelitis of Pubis: Case. H. Reboul.—p. 335.

Mesenteric Cysts in Nurslings.—Martin reports a case of cystic lymphangioma of the mesentery in a child, aged 18 months. In this case the cystic fluid, which may be chylous, serous, hemorrhagic or purulent in lymphangiomas, was clear and pale yellow. The classic symptoms are signs of compression, gastric and intestinal disturbances, vomiting, diarrhea in some cases, constipation in others and sometimes subocclusion. There is an increase in the volume of the abdomen. Percussion may give variable signs. The complications in these cases are due to increase in volume, causing disorders due to compression, suppuration and rupture of the cyst, which may occur without infectious phenomena and lead to serous or chylous peritonitis. Diagnosis, the author thinks, is always difficult. Theoretically the mesenteric cyst is recognized by its median topography, lateral mobility and incomplete and variable dulness on percussion, but in practice the diagnosis is never made. In the case reported the tumor was in the left hypochondrium; it was not movable in a transverse direction, this being characteristic of the retroperitoneal cyst, which is so firmly attached by its pedicle and lumbar implantation as to be immobile; the percussion sound was dull. In discussing treatment, the author counsels against puncture. He was able to split this tumor and accomplish a complete extirpation avoiding the mesenteric vessels, as the tumor was well isolated and there was no inflammation. Frequently, in attempting total removal of the cyst, one risks injury to the mesenteric arteries or veins. One should perform an operation that produces less shock. Marsupialization of the cyst may have to be done; cure by this method is slower, but one avoids operative failures. One should not try to remove an inextirpable cyst; one should rather limit oneself to partial resection.

Revue Médicale de la Suisse Romande, Lausanne

52: 321-384 (May 25) 1932

Bang's Septicemia. M. Reale.—p. 321.
*Gastroptosis: Surgical Treatment. A. Jentzer.—p. 335.
Chronic Maxillary Sinusitis. J. Feuz.—p. 347.
Treatment of Cardiac Insufficiencies. E. Bauer.—p. 355.

Surgical Treatment of Gastroptosis.—Jentzer says that ptosis of the stomach may exist independently of other pathologic changes but that it is almost always accompanied by dilatation and atonicity. Lesions of chronic gastritis are habitual in gastroptosis and sometimes more serious disorders, such as cancer, ulcer and biloculation, exist. While gastroptosis may exist alone, it is often part of a complex syndrome, owing to ptosis of most of the abdominal organs. Among the factors favoring the development of gastroptosis are congenital predisposition, dietetic and therapeutic errors, infectious diseases, compression of the epigastric region, loss of weight, and pregnancy. Several theories of pathogenesis are discussed. The subjective gastric symptoms are variable: sensations of fulness after eating, loss of appetite and so on. In the phase of active dilatation with hypertrophy, hunger pangs are felt. Other symptoms are clapotage, frequent eructations, sometimes vomiting, constipation, cardiopulmonary disturbances, nervous disturbances, and malnutrition. Diagnosis is aided by insufflation, roentgenoscopy and intubation. It is important to differentiate between a true pyloric obstruction and primary gastroptosis. For surgical therapy the author recommends Lambret's operation, which consists in suspending the stomach at the level of the greater curvature. Lambret uses a strip of aponeurosis taken from the left side of the left abdominal rectus, pediculated at its upper portion, introduced into the abdomen between two ribs, and fastened to the entire length of the greater curvature and sutured at its free end to the round ligament at the point where it separates from the liver. The author uses dead tendons instead of an aponeurotic strip for the suspension because it shortens the duration of the operation, diminishes the shock, and avoids lateral cicatrices, postoperative complications and finally the partial destruction of the abdominal wall. The aponeurotic band and the tendon do not appear to be resorbed, but if this should happen it would not be very serious as the stomach would have had time to retract and regain its tonicity. The author hopes this operation will replace the use of abdominal straps, which provoke atrophy of the abdominal muscles. Lambert's operation is physiologic; it does not act from one day to the next but progressively without touching the mucosa, and, while it does not always cure the disorder, it cannot harm the patient.

Schweizerische medizinische Wochenschrift, Basel

62: 489-512 (May 21) 1932

Tuberculosis in Swiss Army. Hauser.—p. 489.
Bacteriology of Tubercle Bacillus. A. Grumbach.—p. 493.
Trauma and Pulmonary Tuberculosis. H. Koenigsfeld.—p. 494.
*Tonsillitis Masking Tuberculosis. H. J. Schmid.—p. 497.
Experimental Human Tuberculous Follicular Dermitis. S. Marbais.—p. 499.
Expectorants in Treatment of Pulmonary Tuberculosis. J. Andreoni.—p. 500.
Procedure in Overflow of Pus into Bronchial Tubes Following Perforation of Pleural Empyema. W. Dobrzaniecki.—p. 501.

Tonsillitis Masking Tuberculosis.—Schmid points out that it is generally known that tonsillitis may precede the first manifestation of a tuberculosis. However, that this is considered either as an incidental concurrence or that the tonsillitis is thought to be the factor that led to the manifestation of the tuberculosis he does not accept as true for all cases. He admits that either may occasionally be true, but he thinks that in the majority of cases the relationship between the pharyngeal symptoms and the tuberculous process is closer. Against a mere accidental concurrence speaks the considerable frequency of this combination. The theory that tonsillitis only causes the manifestation of the tuberculosis is contraindicated by the observation that not severe forms of tonsillitis precede the tuberculosis but usually comparatively mild forms, in which difficulty in swallowing is the main symptom, and there is a noticeable discrepancy between the slight local symptoms and the severe general symptoms, particularly the fever. In many instances this stage of the disease is not seen by the physician, but the anamnesis often reveals that an "influenza with sore throat" preceded the tuberculosis. The author gives several case reports and in the conclusion he admits that the relationship between tonsillitis and tuberculosis also has a reverse aspect; that a chronic tonsillitis, by its increased temperatures, may simulate tuberculosis. But the author thinks that because this is generally known to physicians there may be danger that a tuberculosis is overlooked. He therefore emphasizes once more that it should also be kept in mind that a tonsillitis may mask a tuberculosis.

Morgagni, Naples

74: 667-696 (May 22) 1932

*Painful Contralateral Reflex in Some Cases of Renal Infections. M. Cilento.—p. 667.
*Solieri's Plastic Method of Surgical Treatment of Hemorrhoids. P. Emiliani.—p. 670.
Pathology of Peripheral Nerves. Alteri.—p. 676.

Painful Contralateral Reflex in Renal Infection.—Cilento distinguishes four types of contralateral pain: (1) simple, spontaneous contralateral pain in the region of the normal kidney (on bimanual palpation of the renal regions the pain is produced only in the seat of the pathologic kidney and by the palpation of the corresponding region); (2) nonspontaneous contralateral pain caused by the pathologic kidney in which on palpation the pain is referred to the region of the normal kidney; (3) nonspontaneous contralateral pain caused by palpation of the normal kidney, and (4) nonspontaneous contralateral pain from palpation of the normal kidney associated with a muscular resistance of the abdominal wall on the side corresponding to the normal kidney. The functional reflex is more serious and important than the painful reflex and can even lead to a reflex anuria which only the extirpation of the pathologic kidney can overcome. In the renorenal reflexes the contralateral pain, observed in rare cases of unilateral renal ptosis without parenchymal alteration and elaboration of toxins, impairs the theory of toxins or secondary lesions in the opposite kidney. The author states that in two cases the distention of the pelvis of the pathologic kidney caused contralateral pain in the normal kidney. He stresses the importance of this symptom in cases in which the renorenal reflex is doubtful and investigation may elicit a reflex pain in the normal kidney, originating from the pathologic kidney.

Solieri's Method of Surgical Treatment of Hemorrhoids.—Emiliani criticizes six different methods of treatment of hemorrhoids, exposing their defects, and then describes the method of Solieri, which has been applied for many years with success and without stenosis or prolapse of the mucosa. It consists of an excision on the contour of the divulsed anus of three or four diamond-shaped areas, of which the internal triangle includes the hemorrhoidal mass of the mucosa and the external triangle includes the external hemorrhoids. When the cure is completed, the anal region is perfectly regular and smooth, intersected by three or four radiating linear scars.

Revista Médica Cubana, Havana

43: 649-778 (June) 1932. Partial Index

Medical Treatment of Gastroduodenal Ulcer. I. Angulo Alvarez.—p. 649.
*Left Dorsolateral Position in Appendectomy. F. Leza.—p. 668.
Protection of Voice at Age of Puberty. L. Labarraque.—p. 672.
Anesthesia in Otorhinolaryngology. R. Moreno.—p. 680.

Left Dorsolateral Position in Appendectomy.—Leza states that appendectomy can be performed with good results, even in grave cases, by placing the patient in the left dorsolateral position for the operation. The patient (with the arms raised over the head), lies in the left dorsolateral position inclined at an angle of about 45 degrees, with a bag of sand or a pillow in the angle formed by the table and his back, in order to maintain the same position all through the operation. Under the influence of the patient's position the mobile viscera are displaced toward the left (the opposite side to that on which the operation is going to be performed). The cecum, being a semimobile organ, is displaced to the left only to a slight degree. It is preferable to localize the cecum by percussion and to make the incision (a small opening) along a line corresponding to its internal border, near its fundus, that is, at a distance of about 1 inch (2.5 cm.) from the spina iliaca toward the appendicular region. The cecum can be identified by applying a separator of Farabeuf to either of the borders of the small incision. The appendix can be exteriorized and removed by this technic in a few seconds; thus one avoids any unnecessary manipulation (except in cases of adherent retrocecal appendix or when there are some other complications). With this simple technic, appendectomy can be done under local anesthesia.

Semana Médica, Buenos Aires

39: 1441-1504 (May 12) 1932

Surgery of the Labyrinth. H. Zubizarreta.—p. 1441.
*Ovarian Grafts: Results and Indications. C. A. Castaño and A. J. Risolia.—p. 1469.
*Route for Artificial Serotherapy in Obstetric Hemorrhages: Therapeutic Use of Mammary-Uterine Reflex. J. León.—p. 1474.
Generalized Cutaneous Sarcomatosis. E. A. Votta.—p. 1480.
Pregnancy of Five Months: Left Bifid and Right Angulated Ureters. S. E. Bermann.—p. 1489.

Ovarian Grafts.—Castaño and Risolía obtained satisfactory results from ovarian autografts in forty-four oophorectomized women (under 40) and from ovarian homografts in seven other oophorectomized women (whose age ranged between 20 and 30 years, only one woman of this group being as old as 42). Young and healthy women who were going to have an operation for some condition, such as fibroma or appendicitis, were chosen as donors in cases of homografts. The receiver and the donor of the graft were operated on simultaneously in the same room by different surgeons so that the graft (a piece of the cortical part of the donor's ovary) could be implanted immediately after it had been removed, since when the graft is placed in Ringer's solution or other fluid or serum, or is not implanted immediately after having been removed, its vitality diminishes. It is advisable to perform the operation under local anesthesia of the superficial cutaneous layers, because the infiltration of anesthesia into the deeper layers of the operative field may cause a diminution of the vitality of the graft. The operation is well tolerated with local anesthesia. However, when dealing with emaciated or nervous patients, one may resort to general anesthesia. The following technic is used for the implantation of the graft: A paramesial incision (either right or left) 4 or 5 cm. long is made in the bi-iliac line, followed by an incision of the anterior sheath of the rectus abdominis muscle, in the same direction. The rectus abdominis muscle is slightly displaced and the graft is applied behind it. The sutures are inserted first on the sheaths of the muscle and then on the layers of the skin; care should be taken not to pinch the graft. Two or three days of rest are sufficient for the patient. The authors conclude that ovarian grafts may be resorted to in the treatment of the grave symptoms of ovarian insufficiency caused by the surgical removal of either one or both ovaries in women under 40 who do not improve under the action of uniglandular or pluriglandular opotherapy. The administration of series of daily injections of a solution made up with macerated human ovary from normal women is advisable to stimulate the action of the homograft. Ovarian grafts do not exclude the use of opotherapy. The action of ovarian grafts is not related to suggestion, as some authors have previously stated. If one takes in consideration the short time of activity of the grafts (about three years), the simplicity of the method and the easy technic of the operation, there seem to be no contraindications to implant a new graft when the activity of the graft previously implanted has ceased Further studies on this subject are advisable.

Route for Artificial Serotherapy in Obstetric Hemorrhages.—León made a detailed study on the intimate nervous relationship that exists between the mammary glands and the genital organs, and also on the influence that the intramammary injections of physiologic solution of sodium chloride have on the contractility of the uterus during pregnancy, physiologic labor and the puerperium. The author concludes that the intramammary administration of injections of physiologic solution of sodium chloride constitutes the treatment of choice to check genital hemorrhages of obstetric origin in those cases in which the elicitation of the mammary-uterine reflex may be of therapeutic use by provoking or increasing energetic contractions of the uterus. The treatment aims, at the same time, to improve the general condition of anemia caused by the hemorrhage and to secure hemostasis. The administration of injections of physiologic solution of sodium chloride by the intramammary route is contraindicated when the appearance or exaggeration of the contractions of the uterus may be considered as an unfavorable complication of the condition in the given obstetric case.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

125: 211-300 (May 11) 1932

Cerebral Injuries Caused by Electric Influence. K. Löwenstein and K. Mendel.—p. 211.
*Neuritis in Pigmentary Cirrhosis. R. Mancke.—p. 279.
Threshold of Simultaneous Tactile Sensibility of Skin (Tactile Sphere) When Irritator is Moved. K. Müller.—p. 286.
*Bilateral Facial Paralysis in Parotitis that Concurs with Symptoms of Infectious Polyradiculoneuritis. L. J. Nemlicher, W. W. Tschernikow and S. J. Solomonowa.—p. 292.

Neuritis in Pigmentary Cirrhosis.—Mancke observed five patients in whom the reflexes of the lower extremities, namely, the patellar and the achilles tendon reflexes, were absent. One case was clinically diagnosed as pigmentary cirrhoses; in three instances there existed pigmentary cirrhosis and diabetes, and the other patient had cirrhosis of the liver and diabetes. On the basis of the anamnesis and observation, an infectious as well as an exogenic toxic cause could be excluded. The examination of the central nervous system revealed in all instances only the disturbance in the reflexes. Motor and sensory disturbances as well as ataxia were not detectable. The author assumes that the abolition of the reflexes was caused by an endogenous toxic neuritis of the femoral or sciatic nerve, which is much more frequent during the combination of hepatic and pancreatic disorders than it is if either of the organs is affected alone.

Bilateral Facial Paralysis in Parotitis.—Nemlicher and his associates describe three cases of an infectious disorder, which had a subacute course and was accompanied by polyradiculoneuritic symptoms. The main symptom was a facial diplegia. On the basis of simultaneously existing slight inflammatory manifestations of the parotid gland, the disease was considered an abortive form of epidemic parotitis. For one of the patients, a boy, in whom the testes were involved, this theory is confirmed. As further proof the authors cite reports from the literature on the concurrence of polyneuritis with epidemic parotitis. The facial paralysis is considered to be directly connected with the glandular disorder. It is probable that from the primary diseased parotid gland the disorder spread to the facial nerve. Although in true mumps facial paralysis is relatively rare, the occasional concurrence nevertheless indicates in some cases a special affinity of the disease virus for the facial nerve. It is also pointed out that in some cases of facial paralysis a simultaneously existing disorder of the parotid gland may be overlooked. In the observed cases the general character of the disorder, among other signs the blood picture, seems to corroborate the assumption that epidemic parotitis is caused by a filtrable virus with neurotropic characteristics.

Klinische Wochenschrift, Berlin

11: 881-928 (May 21) 1932

Present Status of Pregnancy Toxicoses. L. Seitz.—p. 881.
*Comparative Investigations on Lipoid Complex of Blood Serum in Essential Hypertension, Muscular Exertion, Starvation, Pregnancy and After Eating. C. Fahrig and L. Wacker.—p. 886.
Ether Soluble Acids in Blood in Uremic Acidosis. E. Becher, R. Enger and Elfriede Herrmann.—p. 891.
Capacity of Human Organism to Absorb Water from Air. E. Zak.—p. 893.
*Disturbances in Carbohydrate Metabolism in Patients with Diphtheria. A. Brems.—p. 895.
Fundamental Law of Basal Metabolism in Biology. H. Pfleiderer.—p. 896.
Reply to Preceding Article. H. Bohnenkamp.—p. 899.
Colloidal Gold Solution According to Fowweather: Value for Test of Spinal Fluid. W. Herrmann.—p. 902.
Nature of Diabetes Insipidus. F. Mainzer.—p. 903.
Successful Transmission of Confluent Perivascular Softening of Cerebral Medulla in Monkeys. W. Gärtner.—p. 905.
Relationship Between Brucella Melitensis Infection and Brucella Abortus Infection. A. Schittenhelm.—p. 905.

Lipoid Complex of Blood.—Fahrig and Wacker compared the lipoid complex of healthy persons during rest with that of patients with hypertension, during starvation, during pregnancy, following physical exertion and following ingestion of a meal with high fat content. Under lipoid complex they understand the phosphatides (computed as lecithin), cholesterol fatty acid esters, neutral fat and free cholesterol. They found that during essential hypertension there usually exists a hyperlipoidemia. Thus the hypercholesteremia that is often discussed in the literature is only a partial manifestation of the hyperlipoidemia. The other constituents of the lipoid complex are likewise increased, so that the physiologic ratio is largely preserved. The hyperlipoidemia that develops during hunger, pregnancy and following physical exertion shows, in regard to the composition of the lipoid complex, great similarity to the hyperlipoidemia during essential hypertension. In contrast to these forms of hyperlipoidemia, the digestion lipemia that develops after eating a meal with high fat content is characterized principally by a great increase in neutral fat. It is mainly due to fat resorption, whereas the other forms of hyperlipoidemia are primarily an indication of a changed intermediate fat metabolism. During starvation, during pregnancy and following bodily exertion, hyperlipoidemia is probably due to an increased mobilization and utilization of the lipoids for energy production. Exhaustion of the carbohydrate reserve during starvation and increased energy requirements during physical exertion and during pregnancy make an increased fat exchange understandable. The increase in the basal metabolism during constantly increased resistance in the peripheral vessels, and the use of lipoid substances by the cardiac muscle, indicate that the hyperlipoidemia during essential hypertension can likewise be explained on the basis of a greater need for energy producing lipoids. The significance of the increased cholesterol content, aside from its function as a transport form for fatty acids, remains unexplained. The acidoses that occur during hyperlipoidemia are produced either as in starvation and perhaps also in pregnancy by intermediate products of the fat metabolism (ketonic acid, beta-oxybutyric acid) that occur in carbohydrate deficiency, or, as in physical exertion, by lactic acid, a decomposition product of the carbohydrate metabolism. The increased lactic acid content that the authors observed in one case of essential hypertension may also be a result of the constantly increased cardiac action.

Carbohydrate Metabolism in Patients with Diphtheria.—During the acute stage of diphtheria, Brems observed quite frequently a moderate increase in the sugar content of the blood. During the acute stage of cases of medium severity and in severe cases, the blood sugar curve following an oral dextrose tolerance test was frequently abnormal. With its extremely high maximal values and the considerably prolonged hyperglycemia, it resembled strongly the conditions in diabetes mellitus. This abnormality of the alimentary blood sugar curve is not caused by fever but by a toxic disturbance in the regulation of the blood sugar, which may be due to functional disturbances in the suprarenals, liver and pancreas. From one to two weeks following the first dextrose tolerance test, the curve became nearly or entirely normal. Spontaneous glycosuria was occasionally observed during the acute stage of a severe diphtheria; after dextrose tolerance tests it was nearly always demonstrable.

Medizinische Klinik, Berlin

28: *709-742* (May *20*) *1932*

Mechanism of Fat Resorption in Organism. G. Rosenfeld.—p. 709.
*Hypertension in Young Persons. K. Walko.—p. 712.
Photometric Determination of Turbidity in Serologic Tests for Syphilis. E. Sehrt.—p. 715.
Treatment of Thyrotoxicosis by Means of Hydrofluoric Acid. V. Gorlitzer.—p. 717.
Striking Increase in Exophthalmic Goiter in Men. A. Wagner —p. 720.
Action of High Frequency Electromagnetic Waves on Degenerative Paralysis of Nerves. D. Kellner.—p. 721.
Blood Picture in Pulmonary Tuberculosis with Consideration of Erythrocyte Sedimentation and of Blood Groups. A. Sylla.—p. 721.
Diagnosis and Prognosis of Tuberculous Early Infiltrate in Rural Population. F. Schreiber-Ermer.—p. 724.
Circulatory Processes in Pulmonary Embolism. K. Kautsky.—p. 725.
Experiences with Kahn's Albumin A Reaction in Diagnosis of Malignant Tumors. H. Röhrig.—p. 725.

Hypertension in Young Persons.—Walko examined 1,700 male and 120 female students between 16 and 22 years of age for the presence of hypertension. Among the male students he detected hypertension in 17.4 per cent and among the female students in 8.3 per cent. In the majority of cases the hypertension was of the labile type, and the persons affected with it were of the nervous, constitutionally weak, irritable and vasolabile type. Only in a small number was the hypertension of the fixed type. Because a large percentage of the students who had hypertension were consumers of large quantities of alcohol or of tobacco, some being users of both, the author thinks that the constitutional, particularly the nervous, factors are not the only causes of the early manifestation of hypertension, but that alcohol and nicotine are also responsible. In addition to this, many of the young people who had hypertension took little or no exercise. In discussing the treatment of hypertension the author states that systematic exercise, without any attempt of record accomplishments, was beneficial and led to a reduction in the blood pressure. Regulation of the mode of life, a proper diet and the restriction of the use of alcohol and of tobacco were also found helpful. Because the vascular reactions were largely psychogenic and because of disturbances in the sympathetic nervous system, psychotherapy was used.

28: *743-776* (May *27*) 1932

Critical Evaluation of Gerson Diet, Especially in Tuberculosis. C. von Noorden.—p. 743.
Lactation and Menstruation. W. Freund.—p. 748.
Treatment of Chorea Minor. W. Enke and K. Wegscheider.—p. 750.
*Influence of Diet with High Carbohydrate Content on Tolerance of Patients with Diabetes Mellitus. G. Czoniczer and E. Kolta.—p. 752.
Problem of Acute Myelosis. F. Lasch.—p. 754.
Almost Complete, Presumably Traumatic Necrosis of Spleen. Frieda Niesner.—p. 755.
Inflammation of Upper Air Passages as Occupational Injury in Manufacture of Photographic Plates. L. Joseph.—p. 756.
Diagnosis of Ruptured Extra-Uterine Pregnancy. Elisabeth Schmitz. —p. 756.
Insomnia and Soporifics. A. Leibholz.—p. 757.
Direct Demonstration of Tubercle Bacilli in Blood Sediments by Hemolysis. B. Busson.—p. 758.

High Carbohydrate Diet and Diabetes Mellitus.—Induced by Porges' studies, by which it had been revealed that the carbohydrate tolerance of diabetic patients can be increased by a diet deficient in fat but comparatively rich in carbohydrates, Czoniczer and Kolta tried to duplicate these results; but they wanted also to determine to what factor the efficacy of this diet can be ascribed. They doubt Porges' assertion that the increased tolerance is primarily due to the fat deficiency of the diet. Their first observations convinced them that the increased tolerance is mainly due to the low number of calories and the comparatively high carbohydrate intake. After that they tried to determine how the tolerance of the diabetic patients is influenced by the excessive carbohydrate intake. The solution of this problem seemed important, because it is generally believed that the carbohydrate intake which exceeds the limits of tolerance exacerbates the patient's condition. The authors made their observations on fifteen patients in whom the diabetes was either slight or of medium severity. In severe cases, in which there exists complete pancreatic insufficiency, a favorable influence of an excessive carbohydrate content was not to be expected, and since one experiment in this direction corroborated this assumption, other severe cases were excluded from the further tests. In the mild and medium severe cases it was noted that, in the first few days of excessive carbohydrate intake, the sugar elimination increased. The maximum was usually reached after two or three days, and then it decreased gradually to the level at which it was before excessive amounts were given. The increase in tolerance varied between 20 and 80 Gm. of carbohydrates. On the basis of these observations, the authors conclude that the ingestion of carbohydrate not only consumes insulin but also has a stimulating effect on its secretion.

Monatsschrift für Kinderheilkunde, Berlin

53: 153-300 (April 29) 1932

*Studies on Acid-Base Economy in Children: Oral Administration of Acid and Basic Substances. H. Forschner-Böke and A. and G. Hottinger.—p. 153.
Tests on Results of Climatic and Brine Bath Cures in Children. R. Niemeyer.—p. 174.
Fetal Meconium Peritonitis Caused by Spontaneous Perforation of Intestine. M. Jachens.—p. 188.
Beginning and End of Chorea Minor in Children Demonstrated on Changes in Handwriting. P. Karger.—p. 197.
*Thrombopenic Purpura Following Smallpox Vaccination. Annemarie Dormann.—p. 204.
Melena Neonatorum: Case. Alice Leffkowitz.—p. 209.
Aleukemic Myelosis in Nursling, Aged 11 Months. T. Varga.—p. 211.
Alimentary Hematuria During Childhood. K. Ochsenius.——p. 217.
Gastric Hemorrhages in Typhoid During Childhood. P. G. Eiwin. —p. 220.
*Toxin and Antitoxin Content of Spinal Fluid in Postdiphtheritic Paralysis. R. Quest.—p. 225.
Behavior of Irritability of Peripheral Nerves in Course of Postdiphtheritic Paralysis. R. Quest.—p. 229.
Suppurative Meningitis During Early Nursling Age. E. Stransky.—p. 235.
So-Called Habitual Vomiting in Children. W. Mikulowski.—p. 242.
Calcium Therapy in Infants and Young Children. Anne Rehmann.—p. 245.
Measurement of Length of Thorax and of Abdomen in Nurslings and Their Relations to General Growth. I. Hilmi.—p. 250.
Behavior of Oxyuris Toward Alizarin. A. Bauer.—p. 254.

Studies on Acid-Base Economy in Children.—Forschner-Böke and the Hottingers studied the acid-base economy in children following oral administration of acid and basic substances. 1. They found that after oral administration of sodium bicarbonate the elimination of organic acids is considerably increased. However, this increase is not due to an increased elimination of ether soluble fatty acids. The elimination of amino-acids is strongly and that of uric acid and of creatine is slightly increased. Between the elimination of amino-acids and of ammonia there seems to exist an interrelation. It is particularly phosphoric acid that is used for maintaining the acid-base equilibrium. The ammonia content of the urine is usually decreased. 2. When large quantities of mineral acids are fed to nurslings, the general metabolism is only secondarily affected. The neutralization takes place primarily in the intestine, and during this process water and bases are withdrawn from the organism. 3. Oral administration of oxyisobutyric acid increases considerably the elimination of organic acids in the urine. The quantity of the ether soluble fatty acids, as well as of the amino-acids, is increased. The elimination of organic acids exceeds the intake of organic acids considerably. 4. During prolonged feeding with lactic acid the organism decomposes the administered organic acid to such an extent that an increased elimination of lactic acid cannot be observed. When lactic acid is given for only a short period to older children, the following results are obtained: The elimination of organic acids is considerably increased. The lactic acid content of the urine indicates that the increased elimination of organic acids is only partially due to unchanged excreted lactic acid. The increased elimination of amino-acids likewise indicates that the greater excretion of organic acids is the result of changes in the intermediate metabolism.

Thrombopenic Purpura Following Smallpox Vaccination.—Dormann relates the clinical history of a child, aged 7 months, who from the sixth to the seventh day following smallpox vaccination developed signs of a purpura. Clinically it was characterized by hemorrhages from the skin and from the mucous membranes and hematologically by thrombopenia. The manifestations disappeared within three days without a therapeutic intervention. The author further reviews two similar cases from the literature and she thinks that a connection between the thrombopenic purpura and the smallpox vaccination can hardly be doubted. However, it cannot be definitely decided whether the vaccination caused the purpura or only led to its manifestation. The rarity of its development in the large number of vaccinations seems to indicate that an endogenous factor is involved. Whether this factor will manifest itself only in a single attack or whether later an essential thrombopenia will develop can be determined only by further observation of such patients.

Toxin and Antitoxin Content of Spinal Fluid in Postdiphtheritic Paralysis.—Quest points out that diphtheria toxin has a special affinity for the nervous substance and he thinks that the postdiphtheritic paralysis which develops between the second and sixth week of the disease is a manifestation of this affinity. The paralysis (really more of a paresis) involves primarily the soft palate, the muscles of the eye and the muscles of the lower extremity; more rarely there is paralysis also of the facialis, of the muscles of pharynx and larynx, and only in exceptional cases the respiratory muscles, particularly those of the diaphragm are involved. A review of the literature on the changes in the spinal fluid during diphtheria revealed that diphtheria toxin and antitoxin have never been detected. The author thinks that the absence of the toxin might be due to the fact that it is bound to the nerve cells; however, the absence of antitoxin was the more surprising, since antitoxin was always found in the blood. He then relates the results of his own studies on nine children with severe manifestations of postdiphtheritic paralysis. Tests for the presence of toxin and antitoxin in the spinal fluid always gave negative results.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

102: 1-232 (May 20) 1932

Protein Chemistry of Vaginal Secretion. L. Nürnberger.—p. 1.
Sulphur Content of Vaginal Secretion. L. Nürnberger.—p. 12.
Gas Content of Blood of Umbilical Cord Before and After Birth of Child: Gas Exchange in Placenta. G. Haselhorst and K. Stromberger.—p. 16.
*Ovary and Endometrium in Patients with Myoma. P. Haggström.—p. 36.
Clinical Aspects and Genesis of Endometriosis: Adenomyosis of Round Ligament Before and After Its Displacement into Abdominal Wall. G. Haselhorst.—p. 104.
Value of Manoiloff's Pregnancy Reaction. Z. von Szathmáry.—p. 112.
Measurement of Occipitofrontal Diameter of Fetal Head. S. Kasamori.—p. 121.
Spreading of Tuberculosis in Uterus. J. Grünstein.—p. 128.
Difficulty in Differentiating Between Tumor of Hepatic Flexure and Tumor of Uterine Adnexa. P. G. Plenz.—p. 137.
Prospects of Further Development of Technic of Roentgenologic Examination of Pregnancy and of Pelvis. F. A. Wahl.—p. 142.
Pathogenic Significance of Trichomonas Vaginalis. M. Rodecourt.—p. 151.

Ovary and Endometrium in Patients with Myoma.—Häggström's investigations were made on the ovaries and the endometrium of fifty-six patients with myoma. In regard to the size of the ovaries he states that in twenty-eight, that is, in exactly 50 per cent of his patients, the ovaries were of normal size. In eleven of the remaining twenty-eight, one ovary was of normal size. In seventeen cases, both ovaries were larger than normal. In general the size of the myoma exerts only a slight influence on the size of the ovaries, for normal as well as enlarged ovaries are found during existence of small and of large myomas. The consistency and the position of the myoma has no influence on the weight of the ovaries. In counting the follicles it was found that in younger women they were more numerous than in older women. The corpora lutea of the patients with myoma did not differ from those in normal ovaries, and thus the author cannot corroborate the opinion expressed by some investigators that they are especially large. Corpora albicantia were found in all instances and in the majority of cases they were numerous. The latter fact, which by some is considered as a characteristic of the ovaries of myoma patients, the author considers a natural result of the advanced age of these patients. Ovarian hemorrhages were present in thirty-six of the fifty-six patients and were found most frequently in myomas of medium size. Cystic degeneration was noted in nearly half of the ovaries. In thirty patients the ovaries showed signs of an existing or of a former inflammation. These signs of inflammation were more frequent in cases of larger than in smaller myomas. In seven instances small fibromas were found on the surface of the ovaries, but these fibromas do not seem to have an influence on the hemorrhages in the myomas. Observations on the hyalinization of the ovarian vessels convinced the author that the degree of hyalinization is more closely connected with the age of the woman, with the number of confinements or with both of these factors than with the myomas. The endometrium was examined in fifty-four of the fifty-six patients. In twenty-three instances it was entirely normal. In twenty-one cases the mucous membrane was atrophied, and hypertrophy was noted in only four instances. A change, characteristic for myoma, could not be detected in the uterine mucosa. Observations on fifteen sterile women of the author's material indicate that, as the size of the myoma increases, the greater is the likelihood of sterility. The position of the myoma appears to exert no influence on the sterility.

Zeitschrift für klinische Medizin, Berlin

120: 249-516 (May 4) 1932. Partial Index

*Metabolic Action of Inhalation of Pure Oxygen. P. Bielschowsky and S. Thaddea.—p. 330.
*Arsphenamine and Bilirubin Content of Blood. O. Satke and K. Thums.—p. 386.

Metabolic Action of Inhalation of Pure Oxygen.—Bielschowsky and Thaddea examined first the influence of inhalation of oxygen on the ketone bodies in the blood and on the acid-base equilibrium. They found that it effects a decrease in the ketone body content of the blood of patients with increased ketone body content. It also increases the alkali reserve and causes changes in the hydrogen ion concentration toward the alkaline side, particularly by a decrease in the alveolar carbon dioxide tension. The authors also examined the influence of oxygen inhalation on the lactic acid content of the blood following intravenous tolerance tests with a 20 per cent solution of sodium lactate. These tests were made first on dogs and then on human subjects, and it was found that when the tolerance test was combined with oxygen inhalation the curve indicating the lactic acid content was considerably lower than when only air was breathed. In order to determine the influence of oxygen inhalation on the lactic acid content without the tolerance test, epinephrine was administered, which ordinarily produces a considerable increase in the lactic acid content in the blood. It was again found that when oxygen was inhaled the lactic acid curve was considerably lower than when only air was breathed. The authors then discuss the action mechanism of the oxygen inhalation but reach no definite conclusions.

Arsphenamine and Bilirubin Content of Blood.—Satke and Thums direct attention to the fact that liver disturbances, particularly icterus, frequently develop following antisyphilitic treatment with arsphenamine. Because the opinions are still divided as to whether the disturbance of the liver is due to syphilis or to the treatment, the authors studied the modification of the bilirubin content produced by administration of arsphenamine. After mentioning a number of investigators who have studied this problem from various angles, the authors describe their own tests. They noted that arsphenamine influences the bilirubin content of the serum in more than 50 per cent of the cases. In one fourth of these abnormally reacting cases the bilirubin content is increased, whereas in the other three fourths of the cases it is decreased. This behavior was seen in cases with an originally normal bilirubin content as well as in cases with a bilirubin content that was increased before administration of the arsphenamine. In order to determine whether the arsphenamine effect was influenced by the size of the dose or by a disturbance in the liver function, the arsphenamine was given in smaller and in larger doses (but never in excess of 0.45 Gm. of neoarsphenamine), and the liver function was tested by the galactose test. However, neither of these two factors were found to be of influence.

Zentralblatt für Gynäkologie, Leipzig

56: 1329-1376 (May 28) 1932

*Treatment of Genital Hemorrhages with Corpus Luteum Hormone. C. Kaufmann and L. Bickel.—p. 1329.
Results of Obstetric Trauma on Pelvis of Mother. E. Philipp.—p. 1346.
Treatment of Asphyxia in the New-Born. E. Burghard.—p. 1350.
Experiences with Belladonna Suppositories. W. F. Rothhammer.—p. 1351.
Simplification of Aschheim-Zondek Reaction by Friedmann's Rabbit Test. E. Parache.—p. 1353.
Prophylactic and Therapeutic Significance of Calcium in Obstetrics and Gynecology. J. Malfatti.—p. 1358.

Treatment of Genital Hemorrhages with Corpus Luteum Hormone.—The physiologic function of the corpus luteum consists, according to Kaufmann and Bickel, in the protection of the ovum and of its site of attachment, the mucous membrane, which it prevents from disintegration and from subsequent hemorrhage. The fact that the corpus luteum hormone inhibits hemorrhage seems to justify its use in the treatment of gynecologic hemorrhages. Accordingly, the authors employed it in sixteen cases of severe uterine hemorrhages. In the majority of these cases, other therapeutic methods had been used without avail. In twelve of the patients the hemostatic effect became noticeable from seven to eight hours after the first injection, but hemorrhage generally recurred from twelve to sixteen hours later and did not disappear again until several additional injections had been given. However, more important than the immediate effect the authors consider the regulating influence on the menstruation. In three of seven women the cycle became almost normal, whereas in three the intervals as well as the duration remained irregular. In the other patient it was regular with only one menstruation of prolonged duration. Three women who were in the premenopausal age, and who had hyperplasia of the uterine mucous membrane, were observed for several months following the corpus luteum therapy, and in these cases clinical cure was effected. The treatment proved likewise helpful in a girl, aged 17, who for a year had almost continuous hemorrhages with rare intermissions. In this case other therapeutic measures had been employed without avail, but after corpus luteum treatment the cycles became regular. Four women discontinued the treatment early, before results were obtained, but in spite of the comparatively small number of cases the authors feel justified in calling attention to the possibilities of treatment with corpus luteum hormone.

Sovetskaya Vrachebnaya Gazeta, Leningrad

April 15, 1932, number 7, pp. 389-448

Multiplication of Bacteria in Cultures. O. O. Gartokh and M. I. Kanevskaya.—p. 393.
Study of Methods for Preparing Bacterial Vaccines. M. I. Kanevskaya, M. A. Zelikina, E. T. Pavlova, S. M. Ostrovskaya.—p. 400.
Fighting Colds in Red Army. Ya. D. Polyak and V. Kh. Chireikin.—p. 403.
Clinical Course of Pulmonary Tuberculosis in Patients with Cardiac Disturbances. I. O. Krijevskiy.—p. 407.
*Atropine in Treatment of Pulmonary Hemorrhage and Bloody Expectoration. K. A. Trofimov.—p. 411.
Methylthionine Chloride in Treatment of Various Dermatoses. E. L. Krom.—p. 416.
Multiple Croupous Pneumonia. N. E. Kushev.—p. 420.
Problems of Medicolegal Expert. N. V. Popov.—p. 424.
Public Health in Stalingrad Tractor Plant. I. L. Glezer.—p. 441.

Atropine in Treatment of Pulmonary Hemorrhage.—Trofimov gave subcutaneous injections of 1 mg. (ten instances) and 0.5 mg. (one instance) of atropine sulphate and found that atropine increases the circulation of the peripheral system and causes a rise in the skin temperature; there is an increase in the circulation of blood in the greater circulation concomitant with a decrease in the lesser circulation. These observations prompted him to use atropine in the treatment of pulmonary hemorrhage and hemoptysis. In six of ten patients, from one to three injections were sufficient to stop the hemorrhage; in two patients, complete cessation of the hemorrhage was possible only after prolonged treatment; and in two other patients the treatment was without effect. Atropine was effective in doses of 0.5 mg. or less; when the pulmonary hemorrhage was profuse, treatment was begun with doses of 1 mg., followed after three hours with 0.5 mg. and after five hours, again, with 0.5 mg.; when the hemoptysis was moderate, the dosage was 0.5 or 1 mg. twice a day. Atropine is contraindicated in gastro-intestinal hemorrhage. The best results are obtained in hemorrhage during a freshly induced artificial pneumothorax. Atropine is indicated in hemorrhage from an aneurysm and previous to the induction of an artificial pneumothorax. The action of atropine is greatest in vagotonia and least in sympathicotonia.

Finska Läkaresällskapets Handlingar, Helsingfors

74: 337-411 (April) 1932

Atmospheric Influences (Noso-Aerial Factors) and Incidence of Scarlet Fever. H. von Willebrand.—p. 337.
*So-Called Spontaneous Panophthalmia. O. Heinonen.—p. 360.

So-Called Spontaneous Panophthalmia.—Heinonen reports that in a woman, aged 30, with a severe cold, a comparatively slight, transient pneumococcus infection occurred; at the same time menstruation set in. On the second day, when the fever was receding, a metastatic retinitis appeared and in a few days panophthalmia developed. Evisceration of the eye was followed by uneventful recovery. Microscopic examination of the exudate showed pneumococci in pure culture. The author thinks the portal of entrance for the pneumococcic infection in the blood was the upper respiratory passages, with the premenstrual constriction of the capillaries probably a disposing factor for the appearance of the infectious embolus in the retina.

Ugeskrift for Læger, Copenhagen

94: 481-500 (May 12) 1932

Position in Schäfer's Artificial Respiration. E. von Holstein-Rathlou.—p. 481.
*Treatment of Parathyroprival Tetany with Calcium Chloride, Parathyroid Hormone and Vitamin D. P. Schultzer.—p. 485.
Temperature of Spinal Fluid. J. Foged.—p. 489.
Phenobarbital Preparations as Means of Suicide. H. I. Schou.—p. 492.
Id. C. Clemmesen.—p. 493.

Treatment of Parathyroprival Tetany with Calcium Chloride, Parathyroid Hormone, and Vitamin D.—In parathyroprival tetany Schultzer advises immediate injections of parathyroid hormone with simultaneous administration of calcium chloride and vitamin D. As soon as the blood calcium rises to normal it can be maintained by the intake of calcium chloride and vitamin D. The importance of the regular use of calcium chloride in particular should be impressed on the patient.

94: 501-528 (May 19) 1932

Thomas Sydenham, English Hippocrates, and Disease Interpreter of Renaissance. K. Faber.—p. 501.
*Pancreatitis as Complication in Epidemic Mumps. E. Sylvest.—p. 508.
*Acute Infectious Disease of Central Nervous System: Cases. H. Schmedes.—p. 514.

Pancreatitis as Complication in Epidemic Mumps.—Sylvest says that pancreatitis may occur directly after the onset of the mumps or later in the course of the disease and is manifested by fever, nausea, vomiting, disturbance in intestinal function, pain and tenderness in the cardia; there is occasionally a palpable tumor with location corresponding to the seat of the pancreas, and the fasting blood sugar values are usually increased. As a rule the disorder is of brief duration, but it may extend over several weeks.

Acute Infectious Disease of Central Nervous System. Schmedes reports seven cases, observed during January in one family, of an acute febrile condition of the central nervous system, partly of definitely infectious character. The cases were polymorphic in kind but were diagnosed as acute anterior poliomyelitis. Poliomyelitis, the author says, rarely occurs in the district in question, and there were no other cases in the immediate vicinity; careful investigation failed to reveal the source of infection. Four additional cases are reported which were also seen in the same month, at a considerable distance from the other cases.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 99, NO. 8 CHICAGO, ILLINOIS AUGUST 20, 1932

THE CRIPPLED CHILD VERSUS THE CHRONIC SICK OF MASSACHUSETTS

CHAIRMAN'S ADDRESS

JAMES WARREN SEVER, M.D.
BOSTON

My original intention was to confine my observations to the problems of the care and education of the crippled child of Massachusetts.

As an exhaustive survey of this subject has not only been recently completed but presented in a remarkably clear report by the Massachusetts Department of Public Welfare, a report that could not fail to interest the medical profession and the general public as well, I will forego unnecessary repetition. I therefore desire to focus attention, first, on education and usefulness of the cripple, and, secondly, on the problem of the chronic sick.

After working for more than twenty-five years in orthopedic surgery, I am hopeful and optimistic for the constantly increasing interest in crippled children, their physical care, education and economic usefulness and the desire and interest on the part of society to give them a square deal with every opportunity for happiness.

The crippled child starts life with a great handicap, but also with an equal appeal to the love, pity and intelligent interest, not only of his parents but of the public at large and of the state in particular. The state is interested from two important angles: first, the economic usefulness of the child to himself and others, and, second, the purely humanitarian desire to alleviate suffering and correct deformities.

For the purpose of clarity I quote the definition of a crippled child adopted by the Massachusetts survey: "A Crippled Child is one who does not have the normal use of bones and muscle for education and work."

This state report shows conclusively that the interest and benevolent attention to this group of society has been steadily on the increase since 1895, when a privately conducted day school in Boston was established to "promote the education and special training of Crippled and Deformed Children" (The Industrial School for Crippled and Deformed Children). Almost simultaneously, the New England Peabody Home for Crippled Children was established. Ten years later, the Massachusetts legislature recognized the importance of providing special care and education for the crippled and deformed children of the state by the establishment of the Massachusetts State Hospital School at Canton. Since then hospital facilities, home care and rational discriminating cooperation between parents, physicians, orthopedic surgeons and school and district nurses have been steadily on the increase, with a corresponding intelligent understanding and provision for the educational and occupational training of crippled children now and in the future.

Massachusetts has twenty-one hospital schools, eighteen when one eliminates for obvious reasons the three large schools for the feebleminded, which not only care for the physical deformities but also give training in regular school courses to the patients, courses suited to their mental capacity and development, together with manual, occupational and sense training. This class of child is in no way included in this study. It seems to me a field quite apart from the group ordinarily catalogued as crippled children.

As a result of the Massachusetts survey, data concerning the entire 6,141 crippled children were obtained; first, as to the causes of crippling conditions, second, classification according to the amount and permanence of the handicap; third, classification according to noncrippling defects, and, fourth, classification according to economic prospects.

Data were also procured concerning 1,034 crippled children listed as institutional patients, known as group A. These data included: (1) their distribution in institutions, (2) classification according to age, disability and sex and (3) institutions in Massachusetts caring for crippled children of this group.

Comprehensive data on the following points were obtained concerning the 5,107 crippled children who are catalogued as noninstitutional patients, or belonging in group B: (1) whether the children were living at home or temporarily being cared for in hospitals maintaining active surgical units, (2) geographic distribution, (3) classification according to age, disability and sex, (4) treatment and (5) education.

Admitting that happiness is as indispensable and desirable for the cripple as for the normal person, it is essential that the economic future of the child be considered. All treatment should point toward reducing the handicap and, at the same time, should train the crippled child to the proper mental attitude toward his disability, which will enable him to compete with normal persons. This adjustment should begin early in life, through the combined efforts of the physician, the parents and the schools.

When the cripple has received the care and training necessary for him to take his place in the world as a self-respecting, independent and self-supporting citizen, his next need is the proper opportunity for such self-support. I refrain from quoting figures and tables and giving specific cases, all of which are far better understood and retained when read. They are clearly set

---

Read before the Section on Orthopedic Surgery at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

forth in the report just published by the Massachusetts Department of Public Welfare relative to the "Number and Care of Crippled Children in Massachusetts," which furnishes comprehensive and instructive reading for those interested in the crippled child, who is "one who does not have the normal use of bones and muscles for education and work."

Keeping this in mind, there is one comparison of figures I should like to state briefly, to make more emphatic the points I am laying the most stress on, namely, education and usefulness through opportunity.

Comparison of the education of group B, noninstitutional patients (the largest group) with the education of all minors in Massachusetts (figures estimated from the 1929 school census and the 1930 federal census) shows that the educational status of children of group B compares favorably with that of other children.

The 1,563,127 persons under 21 years of age in Massachusetts are classified in age groups as follows: 497,622 under 7 years of age, 553,009 between 7 and 14 and 512,496 between 14 and 21.

Of the 497,622 normal children under 7 years, 26.58 per cent are receiving education and 73.42 per cent are not. Comparison with the figures for the 919 crippled children of the same age group shows a difference of 0.84 per cent in favor of the crippled child.

Of the 553,009 normal children between 7 and 14 years of age, 99.76 per cent are receiving education and 0.24 per cent are not. Comparison with the figures for 2,298 crippled children of the same age group shows a difference of 11.20 per cent in favor of the able-bodied children. This difference may be somewhat accounted for by the fact that the crippled group includes a large number of children out of school for treatment, others who are mentally unpromising as well as crippled, and also many now receiving education under the provision of the new law requiring home teaching for crippled children.

Of the 512,496 normal children between 14 and 21 years of age, 33.50 per cent are receiving education and 66.5 per cent are not; compared with the figures for 1,890 crippled children of the same age group, there is a difference of 35.65 per cent in favor of the crippled child. This difference, however, may be accounted for somewhat by the fact that the education of the cripple is often continued at an age when the able-bodied child has left school for work.

Except in a comparatively few instances, the educational problem has been met pretty squarely by the parent and child. However, there is still room for enlightened cooperation and discriminating understanding to remove doubt and prejudice, but this will undoubtedly be counteracted by the increased facilities for handling these children in the public schools and in private and special schools conducted for them, and also through the law recently enacted which provides that in every town or city where there are five crippled children who cannot attend school a teacher shall be supplied by the local school department to teach them in their homes. The result is that over thirty cities and towns give home instruction to crippled children.

Also, the services of the Rehabilitation Section of the Department of Education are available for any resident of Massachusetts of legal age for employment whose physical disability is a vocational handicap and who might reasonably expect to be fitted for remunerative employment.

The Massachusetts enactment provided for a continuing survey and supervision of the Department of Education and Public Welfare. It should make possible a broader social service for crippled children all over the state.

The service is and will be directed further toward finding the crippled, educating the parents in the necessity of suitable treatment and education for their children, insuring continuity of treatment by follow-up work and educating the public to the proper attitude toward the cripple, so that those who are able may be given the opportunity to earn their own living.

To quote the survey:

> The general public of Massachusetts has generously responded to the appeal for funds to aid the Crippled Child. It has helped to bring treatment and happiness and insisted upon every possible educational advantage.
>
> But is it now ready to give employment? When the Cripple comes seeking work does it look beyond the physical handicap to the personality? Does it realize that he is not seeking sympathy, in fact does not want it, that he has been trained and has learned by necessity the art of doing things well in spite of his handicap, that what he wants is an opportunity to prove that he can fill well the position which he seeks?

I believe that hospitals that minister to the needs of children stimulate the most urgent appeal and obtain the quickest response from a wide and generous public.

Is there a similar claim and discerning intelligent interest in the physical care and the mental adjustment of the chronically sick? What can the state do for this unfortunate group of citizens? Will private philanthropy again blaze the trail for the chronically sick as it did for the crippled child?

Will people of great wealth be willing to consider seriously and desire to endow a much needed and deserving form of charity so seldom ministered to or adequately provided for by philanthropists?

One contemplates the ever-increasing duplication of memorial libraries, monuments, chapels, windows, organs and chancels, elaborate dining and lounging halls, expensive recreational facilities donated to private schools and universities, and towers raised on every conceivable structure. As many of these bequests have been given in the memory of fathers, mothers, husbands, wives and children, one asks why people still possessing and amassing huge fortunes do not more often feel the urge and interest to give generously to a neglected group of society, the adult chronically sick of the great middle class with small incomes, men and women who, through no fault of their own or lack of industry, may become what is known as the "chronic sick"?

Despite the fact that in our states, almost every city has its general and private hospitals, and that towns, alone or in groups, maintain and support well equipped hospitals for the care of the acutely sick, hospitals that are generous and helpful for periods as long as their boards or endowments permit, sooner or later arises the question, so difficult to meet satisfactorily: "What is to become of patients discharged, who from necessity must be catalogued as 'chronic sick'?" For instance, take the large group of unfortunates who would come under the group of arthritic patients, with all that this condition involves.

Fortunately, one does not need to consider so carefully the two extremes of humanity, the rich who can afford to have all possible comforts and attention and opportunities for happiness, and the very poor who by circumstances of birth, lack of education and opportunity are generally provided for in state, county or city infirmaries or almshouses.

The medical profession at large would surely admit that these two extremes of society are far better provided for than the intermediate class, by reason of the tendency to erect expensive private wards and the philanthropic desire to maintain charitable or semi-free beds for people able to pay little or nothing. Four persons confessed that in recent long illnesses in their families the patients were cared for at home just as soon as they could safely be discharged from the hospital, in spite of the conviction that they should have remained longer. This was due to the fact that there was insufficient accommodation in the lower priced private rooms, and that the patients and their families were so distressed over the cost of the luxurious rooms, together with necessary nursing and other bills, that the situation was not conducive to a happy recovery. The feeling was unanimous that there was an immediate need and demand for more plain, simply furnished rooms, at, say, $6 a day, which would add to the peace of mind of the patients and those responsible for them; instead they were being cared for on a scale that they could ill afford and did not desire. It would be interesting to know whether this rational state of mind has been one of the chastening results of financial depression or whether it is due only to the wisdom of mature years, which teaches most of us the uselessness of nonessentials in important matters. The latter would not seem to be the prime factor, for I consulted a number of physicians, in varying fields of medicine, who insisted that the majority of their young married patients were more than ready to reject and eliminate nonessentials.

In cases of the chronic sick it is difficult to find suitable care and homes for people of slender means. Such private institutions as exist are generally crowded, with long waiting lists, or are conducted in such a manner as to be too expensive for the average income of the big middle class.

There would seem to be an urgent need for the endowment of institutions where people of refinement and education with chronic conditions can go after being discharged from the hospital and where, by the payment of reasonable sums of money, they can feel not only secure but self-respecting, and not be a burden to families unable to care and provide properly for a chronically sick person in their midst. This is especially important, since so many people who are in this group have led busy, industrious lives, earning their living in necessary, but frequently, underpaid professions.

What also seems worth considering is the question whether institutions for social betterment would be just as useful if they were run on less extravagant lines, so far as buildings, equipment and maintenance are concerned. This seems an important consideration in future requests for funds at a time when even well established and undoubtedly valuable charitable and private educational institutions are making constant appeals to the general public with not too successful or immediate results.

An executive of an important industry was recently asked why in his organization, a few years ago, with an increased output and business, they discharged certain people. He replied:

> Remember, we are not a charitable or educational institution, spending the invested funds or subsisting on the benefactions of a well solicited public. We cannot afford to keep in our employ people who do not prove that they can earn their salt or who are not essential additions to our company.

Of course one is aware of the indignant rejoinder of certain people who will immediately say that charitable and educational institutions cannot be run like a business. However, the truth remains that some successful ones can and do function satisfactorily without such lavish expenditures for nonessentials. There will be those who say that there is much wealth still untouched to endow further institutions. To whom and for what will they minister?

An ordinary inmate or observer would not presume to judge adequately of the value of the lavish expenditure displayed in schools and universities and the sumptuously equipped charitable institutions, and one does not desire to raise undue argument in regard to the relation of efficiency to the expenditure of public bequests. But one simply wonders why, if so much money is available, more people with large means do not feel encouraged to endow suitable and comfortable, not necessarily lavishly luxurious, hospitals and homes for the self-respecting chronically sick adult.

Any physician can furnish as deserving examples as the following: A librarian, finding herself crippled in late middle life, is now faced by the devastating fact that at present, cared for as she is obliged to be, in a private nursing institution, the expense is so great that unless she is fortunate enough to die in a few years, she will have exhausted her entire capital. A retired school teacher, living contentedly in a tiny apartment, doing her work and laundry and living simply as to food and pleasures, met with an accident which, after months of acute illness, left her in a condition in which she could neither take entire care of herself nor continue to stay where she was and have an attendant. This woman was not only capable of much mental happiness for herself, but she had the spirit and ability to be useful to others through her fine mental attainments, if she were where she could be of service. Her nearest relation, a niece, was married to a man whose profession entailed frequent changes of locality, if husband and wife wished to live together on a rather small salary. The patient neither felt herself entitled to nor did she desire to enter a city home, and she could not afford the cost of the average nursing home or sanatorium run as a business venture. The problem was to find suitable part time care and accommodations where she might be happy and not feel herself an object of charity.

A man crippled by arthritis and unable to work suddenly lost his devoted wife, who had been able not only to supplement their income by her own efforts, but had cared for him and their tiny home. They had two children living at a distance. A son, either from lack of sympathy or means, or a combination of both, refused to help solve this problem. A daughter, happily married to a public school teacher, not only was bringing up her little family—one child had recently had infantile paralysis—but for years had had her husband's mother living as a dependent in her home. The father neither desired to add to her burden nor to try to adjust himself to a situation that was difficult, to say the least.

These few examples are typical of many deserving American people suffering from conditions of health that would seem more bearable if the people could be more free from a financial strain, in congenial surroundings.

The average boarding house does not solicit guests of this type. There are a few well run institutions for "chronics" or "incurables," some of which have more alluring titles engraved on their stationery and displayed over their doors. All are overcrowded with long waiting lists and, by reason of their religious faith or endowments, are largely filled with the people for whom they were designed, who are generally able to pay little or nothing. The other alternative is the city home, town poor farm or state farm, with hospital facilities. None of these institutions would seem to fit or expect to minister to the physical and spiritual needs of persons such as those just mentioned.

These people do not ask or desire unadulterated charity; they need an opportunity for reasonable care and for a chance for friendly intercourse and companionship among their contemporaries and equals.

Endowments are suggested for more institutions so built and managed that these people of slender resources can afford to enter them, not entirely as objects of charity, but as self-respecting paying guests and patients, who are able and willing to be cared for on a scale commensurate with their income Who must make the appeal and blaze the trail for Massachusetts or other communities?

321 Dartmouth Street

NEUROLOGIC FEATURES OF PERNICIOUS ANEMIA

RICHARD H YOUNG, M D
NEW YORK

Studies of pernicious anemia have shown the presence of a wide variety of associated lesions in the central nervous system. As early as 1880, Little[1] described cephalalgia, vertigo, syncope, neuralgic pains and mental depression, along with other symptoms of pernicious anemia. The exhaustive work of Russel, Batten and Collier[2] followed that of Lichtheim,[3] Putnam[4] and Dana[5] in the early description of the spinal cord changes. Certain of the lesions described by the former authors have not received mention since. Barrett[6] and, particularly, Woltman[7] have called attention to the cerebral changes. Bastianelli,[8] Putnam and Taylor[9] and others have reported optic atrophy in association with pernicious anemia. The sensory changes have been described by many authors, but the work of Hamilton and Nixon[10] is an excellent review of the subject and, in addition, reports pathologic changes in the peripheral nerves. A recent article by Michaud[11] mentions bulbar symptoms.

The present paper deals with an analysis of the neurologic aspects in patients with pernicious anemia who have been admitted to the Peter Bent Brigham Hospital from its opening in 1913 to January, 1931. There is danger of burdening the literature when such excellent reviews by Woltman,[12] Smithburn and Zerfas[13] and others are available. However, the review of such a large number of cases, 515, while containing all the more common neurologic lesions in association with pernicious anemia, presents in addition a smaller group of lesions that have not received the attention they deserve. The observations so well epitomize the literature on the subject that they deserve mention, even if in brief form.

INCIDENCE

The incidence of changes in the central nervous system in pernicious anemia has been variously reported. McCrae[14] reported 25 per cent in a series of forty patients; McPhaedran[15] found 40.9 per cent in a series *of twenty-two patients, and Woltman*[12] *discovered* changes in 80.6 per cent of 150 patients. A recent report by Smithburn and Zerfas[13] describes paresthesias as being present in 95.6 per cent of 115 patients. The great variance in incidence would seem to be largely dependent on the accepted criteria.

Michaud,[11] in his paper, bases his figure of 40 per cent on the more advanced changes.

In this series of 515 cases there were 103, or 20 per cent, of the cases with well defined cord changes marked by reflex changes and ataxia. *The incidence would have* been much higher if lesser changes of the nervous system had been included.

The belief, as expressed by Michaud and others, that combined system disease is seen more frequently today is borne out in this group of cases. With the summer of 1925, when liver therapy was inaugurated at the Peter Bent Brigham Hospital, as an arbitrary date, the incidence has been 26 per cent as compared with 15.9 per cent before that time

AGE

The cord changes were found most frequently between the ages of 40 and 65. Since 1926, the majority were in the group between 50 and 65, while before that time the greatest frequency was in the 40-50 age group. Five per cent of the 103 patients were between 35 and 40 and 3 per cent in the 30-35 age group.

SEX

Combined sclerosis was found in about equal numbers in males and females. In the 103 cases of combined system disease, 48 per cent were males.

ONSET

The onset of the neurologic involvement in relation to the course of the disease pernicious anemia has been shown to be most variable. The neurologic symptoms may appear with the blood count at almost any level. A review of the admission blood counts in this series shows that most frequently the range was from 2 to 2½ million red cells. Occasionally the red count was near normal. This last condition seems to have been much more frequent since the institution of liver therapy. Changes of the nervous system developed in not a few cases with a red count of slightly over 4 million, a

---

From the Medical Clinic of the Peter Bent Brigham Hospital, Boston

[1] Little, H W Progressive Pernicious Anemia, a Disease of the Vasomotor System, M Rec **17:** 313, 1880

[2] Russell, J S R, Batten, F E, and Collier, J Subacute Combined Degeneration of the Spinal Cord, Brain **23:** 39, 1900

[3] Lichtheim Zur Kenntniss der perniciosen Anamie, Verhandl d Cong f innere Med **6:** 84, 1887

[4] Putnam A Group of Cases of System Sclerosis of the Spinal Cord, Associated with Diffuse Collateral Degeneration Occurring in Enfeebled Persons Past Middle Life, and Especially in Women, Studied with Particular Reference to Etiology, J Nerv & Ment Dis **16**, February, 1891

[5] Dana, C L Subacute Combined Sclerosis of the Spinal Cord and Its Relation to Anemia and Toxemia, *J Nerv & Ment Dis* **26:** 1, 1889, February and April, 1891

[6] Barrett, A M Mental Disorders and Cerebral Lesions Associated with Pernicious Anemia, Am J Insan **69:** 1063, 1913

[7] Woltman, H W Brain Changes Associated with Pernicious Anemia, Arch Int Med **21:** 791 (June) 1918

[8] Bastianelli, G Le sclerosi combinati del midollo spinale nelle anemie perniciosi, Bull de roy Acad de med di *Roma* **22:** 197-244, 1896 1897, ref Neurol Centralbl **16:** 78, 1897

[9] Putnam, J J, and Taylor, E W Diffused Degeneration of Spinal Cord, J Nerv & Ment Dis **28:** 1 21, 1901

[10] Hamilton, A S, and Nixon, C E Sensory Changes in the Subacute Combined Degeneration of Pernicious Anemia, Arch Neurol & Psychiat **6:** 1 (July) 1921

[11] Michaud, L Les troubles nerveux dans l'Anemie de Biermer anemie de Biermer et sclerose combinee, *Schweiz med Wchnschr.* **61:** 827 829 (Aug 29) 1931

[12] Woltman, H W Nervous Symptoms in Pernicious Anemia, Am J M Sc **157:** 400 (March) 1919

[13] Smithburn, K C, and Zerfas, L G · The Neural Symptoms and Signs in Pernicious Anemia, Arch Neurol. & Psychiat **25:** 1100 (May) 1931

[14] McCrae, Thomas Pernicious Anemia The Statistics of a Series of Forty Cases, J. A M. A **28:** 148-150 (Jan 18) 1902

[15] McPhaedran, A · *Observations on the Nature and Treatment of* Pernicious Anemia, Lancet **1:** 148 150, 1902.

majority of which cases were those in which there had been failure to take sufficient of a potent liver extract.

The most frequent inaugural neurologic symptom was paresthesia, which was also characterized by its very early appearance in the disease. Girdle pain, chiefly abdominal in location, may be present as an early symptom. Of the 103 cases with combined system disease, 13 per cent presented such girdle pains. At times the pain was associated with indigestion and simulated gastric crises. In this series, the girdle pain in recent years has been quite rare. Murphy[16] states that backache may be a presenting complaint. A small group of patients complained of what was termed a "neuritis," both brachial and sciatic in location. In a rare case mental changes developed as the earliest sign.

CLINICAL FEATURES

Cerebral Manifestations.—This phase of pernicious anemia was the subject of study by Woltman. In the 515 cases of pernicious anemia reviewed here, 4.5 per cent showed psychotic trends. The mental state seemed to vary considerably and included acute deliriums, depressions, paranoid states, and memory and disposition changes. It may be observed that the patient ill with pernicious anemia is quite frequently a cantankerous, refractory patient. However, once the remission starts, the change in disposition is often remarkable.

Among the cases presenting psychotic changes which came to autopsy, several interesting changes were observed. These included a chronic pachymeningitis and leptomeningitis and, in a second case showing symptoms of short duration, a thin subdural blood clot. There was, however, no complete pathologic study of any patient in this group with cerebral manifestations.

Ophthalmoscopic Examination.—A tabulation of the ophthalmoscopic observations in the cases of pernicious anemia with combined sclerosis showed that out of eighty-seven cases with careful ophthalmoscopic examination only ten yielded evidence of retinal hemorrhage. Eight of the ten were patients who suffered chiefly from psychotic manifestations. In this series, it was observed that the patients with pernicious anemia with a well marked psychosis almost invariably had retinal hemorrhages. There appeared to be no relationship between the presence of arteriosclerotic changes as portrayed in the fundi and the development of cord changes.

Optic atrophy in pernicious anemia, while rare, has been reported. In this series of pernicious anemia cases the condition was found to be present twice.

One of these patients, a man, aged 67, has been under observation for four years. In October, 1928, a year after his first admission to the hospital, for pernicious anemia, the patient experienced an exacerbation with increase in neurologic symptoms and a failing vision. The patient stated that he had averaged three-fourths pound (340 Gm.) of liver a day, but by the time of admission in January, 1929, his vision was practically gone, and the red count had dropped to 3,600,000 with hemoglobin 75 per cent. Examination at that time showed optic atrophy, which had not been present at the time of the first admission. The Wassermann reactions of the blood and the spinal fluid were negative, and no other cause for the optic atrophy could be determined. Since that time the patient's blood has been kept at a normal level, but there has been no change in vision.

Pallor of the optic disks without signs of atrophy was reported in a small number of ophthalmoscopic examinations.

Cranial Nerve Palsies.—Russell, Batten and Collier[2] were the first and among the few observers to report cranial nerve palsies in combined system disease. In this group of cases presenting pernicious anemia there was one case of a sixth nerve palsy and two cases of seventh nerve palsy that developed in association with the disease.

Nystagmus.—This condition was found in three of this group of cases. Nystagmoid movements were not uncommon.

Speech Disturbances.—One patient was described as having a scanning type of speech; another, speech of a staccato type. A third patient had a transient dysarthria associated with aphasia and subjective sensory changes in the right arm attributed to a cerebral vascular lesion.

Autonomic Disturbances.—While alterations in the pupils were rare, the condition was reported occasionally. No endophthalmus was noted.

Herpes.—While girdle pains, often severe in type, are frequently present, a herpetic condition is not usually associated with involvement of the nervous system in pernicious anemia. Russell, Batten and Collier[2] in their early report described herpes as being present. In one of their cases (case 7) in which there was a hemorrhagic herpetiform eruption, the autopsy showed a cyst occupying the center of the dorsal ganglion. In this series of cases a past history, though not specifically asking about herpes, uncovered a history of this condition in seven cases. Four of these patients suffered from herpes during their acute illness with pernicious anemia, and three of these four later developed degenerative changes in the nervous system. One of these three patients was admitted suffering from a pain similar to a pain she had had five years before, associated with herpes.

Spinal Cord.—The 20 per cent of the cases of pernicious anemia that showed definite combined sclerosis hardly deserve mention. The change brought about by posterior and lateral column degeneration are too well known for further elaboration here.

Peripheral Nerves.—While such change pathologically has been shown by Hamilton and Nixon and by others, there was not sufficient pathologic study to evaluate the question of peripheral neuritis in this series of cases.

Among the patients with cord changes there were five who complained of severe muscle pain, several of whom had pain on deep pressure over what corresponded to the greater nerve pathways. As previously mentioned, a number of patients gave "neuritis," so descriptive of their coursing pain, as the earliest complaint. Other symptoms and signs of neuritis were frequently present; their relationship to a true neuritis cannot be stated.

LABORATORY OBSERVATIONS

The laboratory studies have produced nothing that differentiates the case of pernicious anemia with changes of the nervous system from those without. The chief diagnostic measures, such as blood counts with interpretation of the smear, plus gastric analysis and such adjunctive methods as icterus indexes and hematocrit readings, were used.

Examination of the spinal fluid with normal pressure and dynamics did not give remarkable results. With a rare exception, the cell count ranged from 0 to 4. The globulin was normal except in an occasional case which showed a one plus. The colloidal gold test was almost uniformly quite level.

---

16. Murphy, W. P.: Personal communication to the author.

SUMMARY

A study of 515 cases of pernicious anemia occurring during the years 1913-1930 would indicate that the associated lesions of the central nervous system, present in 20 per cent of the patients, may present a variegated symptomatology and may be disseminated in location.

Bellevue Hospital.

INJECTION OF LIVER EXTRACT IN THE TREATMENT OF PERNICIOUS ANEMIA

H MILTON CONNER, M.D
ROCHESTER, MINN.

The demonstration by Minot and Murphy[1] that the feeding of liver brings about complete remission in pernicious anemia led to the development of liver extracts of various types, of which that of Cohn and his associates[2] is most generally used A search for the effective substance in liver led to partial purification of the material, but these more or less purified substances developed by Cohn and his associates[3] and by West and his associates[4] have proved too expensive to be practical in the treatment of pernicious anemia.

To Gansslen[5] belongs the credit of having first prepared at moderate expense an extract of liver suitable for injection intramuscularly. He injected daily into the gluteal muscles 2 cc, equal in effect to from 200 to 400 Gm. of liver

Castle and Taylor[6] obtained a maximal response in reticulocytes from a single intravenous injection of the extract made from fraction G (343) derived from 100 Gm. of liver. It caused a fall of the blood pressure in a considerable number of cases, but this effect could be obviated by slow injection.

Strauss, Taylor and Castle[7] later produced from fraction G an extract designed for intramuscular injection, of which 20 cc., representing 100 Gm. of liver, was given daily.

Wilkinson[8] produced an extract suitable for intramuscular and intravenous use similar to fraction S of Cohn and free from carbohydrates, lipoids and proteins.

Sturgis and Isaacs[9] recently produced material suitable for intravenous injection

Materials prepared according to the method of one of the foregoing investigators have been used by various workers, notably Schottmuller,[10] Davidson,[11] Harrington and Fleming,[12] Kahler,[13] Meythaler,[14] Aubertin and Voillemin,[15] Schilling,[16] Selander,[17] Störmer,[18] Woldrich,[19] van Leeuwen,[20] Achard and Hamburger;[21] by Billig, West-Watson and Young,[22] Essenfeld[23] and Anderson.[24]

After most of my paper had been prepared, Connery and Goldwater[25] reported on the results of the use of a more concentrated extract, in which 5 cc. represented 100 Gm. of liver; Murphy[26] reported on this preparation, and also on one still more concentrated in which 3 cc. represented 100 Gm. of liver.

CASES STUDIED

I injected liver extract in thirty unselected cases of pernicious anemia. The results in the different series are given separately and are summarized in the table Three cases are not included in the detailed study because of insufficient observation. In one of these the injection of the less concentrated material was discontinued after two days because of the bitter complaint of pain. In one case the patient was under observation only two days after injection of the more concentrated material, and in another doubtful case, the first injection was given only two days before the completion of my paper.

Most patients were observed daily with respect to variations of reticulocytes; certain patients three times daily, during the period of active increase. Hemoglobin, erythrocytes and leukocytes were estimated in some cases daily and in others about twice weekly. Platelets were not estimated in all cases. In some cases, there were approximately weekly estimations of serum bilirubin, iron in whole blood, blood urea, blood sugar and uric acid and iron index (an index of the relative amount of iron in each erythrocyte).

Method of Treatment.—One series of twenty-one patients was treated by the intramuscular injection of material in which 2 cc. represented 10 Gm. of liver

---

From the Division of Medicine, the Mayo Clinic

Read before the Section on Practice of Medicine at the Eighty Third Annual Session of the American Medical Association, New Orleans, May 11, 1932

Because of lack of space, this article is abbreviated in THE JOURNAL by the omission of some of the illustrations The complete article appears in the author's reprints

[1] Minot, G R, and Murphy, W P Treatment of Pernicious Anemia by a Special Diet, J A M A **87:** 470 (Aug 14) 1926

[2] Cohn, W J, Minot, G R, Alles, G A, and Salter, W T The Nature of the Material in Liver Effective in Pernicious Anemia II, J Biol Chem **77:** 325 (May) 1928

[3] Cohn, E J, McMeekin, T L, and Minot, G R The Nature of the Material Effective in Pernicious Anemia III, Am J Physiol **90:** 316 (Oct) 1929

[4] West, Randolph, and Howe, Marion A Crystalline Derivative of an Acid Present in Liver, Active in Pernicious Anemia, J Biol Chem **88:** 427 (Aug) 1930 West, Randolph, and Howe, Marion Liver Fractions in Pernicious Anemia, J Clin Investigation **9:** 1 (Aug) 1930 West, Randolph, and Howe, Marion Material from Liver Active in Pernicious Anemia Further Observations, J A M A **97:** 685 (Sept 5) 1931

[5] Gansslen, M Ein hochwirksamer, injizierbarer Leberextrakt, Klin Wchnschr **9:** 2099 (Nov 8) 1930

[6] Castle, W B, and Taylor, F H L Intravenous Use of Extract of Liver, Maximal Response of Reticulocytes from a Single Injection Derived From One Hundred Grams of Liver Preliminary Communication, J A M A **96:** 1198 (April 11) 1931

[7] Strauss, M B; Taylor, F H L, and Castle, W B Intramuscular Use of Liver Extract Maximal Responses of Reticulocytes from Daily Intramuscular Injection of Extract Derived from Ten Grams of Liver Preliminary Communication, J A M A **97:** 313 (Aug 1) 1931.

[8] Wilkinson, J F: Injection of Highly Purified Liver Preparations in Pernicious Anaemia, Lancet **2:** 791 (Oct 10) 1931

[9] Sturgis, Cyrus, and Isaacs, Raphael, quoted in Anemia Treated by Injection of Liver Extract into Veins, Science News Letter **21:** 51 (Jan 23) 1932.

[10] Schottmuller, H Weitere Erfahrungen uber die Lebertherapie bei Anaemia perniciosa, München med Wchnschr **78:** 432 (March 13) 1931

[11] Davidson, L S P Observations on Intramuscular Liver Extract Therapy in the Treatment of Pernicious Anemia, Brit M J **1:** 269 (Feb 13) 1932

[12] Harrington, A W., and Fleming, John The Treatment of Pernicious Anemia by Injections of Liver Extract, Glasgow M J **116:** 345 (Dec) 1931

[13] Kahler, Hans Weitere Fortschritte in der Injektionsbehandlung der Anaemia perniciosa, München med Wchnschr. **79:** 23 (Jan 1) 1932

[14] Meythaler, F Erfahrungen mit Gansslens injizierbarem Leberextrakt bei der Behandlung der perniziösen Anamie, Klin Wchnschr **10:** 2336 (Dec 19) 1931

[15] Aubertin, C, and Voillemin Anemie pernicieuse traitee par des injections intramusculaires d'extrait hepatique, Bull et mem Soc med d hop de Paris **51:** 749 (May) 1930

[16] Schilling, Viktor Gansslen's injiziebares Leberextrakt. Ein neuer Beweis gegen Leberresistenz und fur Beeinflüssbarkeit der funikulären Medullose, Klin Wchnschr **10:** 301 (Feb 4) 1931

[17] Selander, P Injectable Liver Preparation, Hygiea **93:** 625 (Aug 31) 1931

[18] Störmer, A: Lebertherapie beim harnsäureüberempfindlichen Kranken mit Gänsslen's Extrakt, München med Wchnschr. **78:** 575 (April 3) 1931

[19] Woldrich, A: Parenterale Lebertherapie, Med Klin **27:** 1892 (Dec 24) 1931

[20] van Leeuwen, H C: Treatment of Pernicious Anemia by the Intravenous Administration of Liver Extract, Nederl tijdschr v geneesk **75:** 4425 (Aug 29) 1931

[21] Achard, C, and Hamburger, M L'opotherapie hepatique par voie parenterale dans le traitement des anemies graves, Presse med **38:** 1273 (Sept 20) 1930

[22] Billig, I, West Watson, W N, and Young, C J The Intravenous Liver Treatment of Pernicious Anemia, Brit M. J **1:** 273 (Feb 13) 1932

[23] Essenfeld, Emanuel Zur parenteralen Leberbehandlung der perniziösen Anamie (nach Versuchen mit Hepatopson pro injectione, Promonta), Med Klin **28:** 12 (Jan 1) 1932

[24]. Anderson, W C: Case of Pernicious Anemia Treated by Injection of a Liver Extract, Lancet **2:** 1022 (Nov 7) 1931

[25]. Connery, J E, and Goldwater, L J Parenteral Use of Liver Extract in Treatment of Pernicious Anemia, J A M A **98:** 1060 (March 26) 1932

[26] Murphy, W. P.: The Parenteral Use of Liver Extract in Pernicious Anemia, J A M A **98:** 1051 (March 26) 1932

(in this paper called less concentrated material), prepared, in most instances, by one of the standard manufacturing pharmacists according to the method of Strauss, Taylor and Castle, but in a few instances by a preparation made according to their formula by Osterberg in the chemical laboratories of the Mayo Clinic. A second series of three patients was treated by the intravenous injection of a preparation made by one of the manufacturing pharmacists according to the formula of Sturgis and Isaacs, in which 20 cc. represented 100 Gm. of liver. A third series of three patients was treated by intramuscular injection of a more concentrated preparation, in which 3 cc. represented 100 Gm. of liver, and which was developed by Murphy in collaboration with Clark of Lederle & Co. (in this paper called more concentrated material).

Dosage.—The less concentrated material of Strauss, Taylor and Castle was given daily, according to their suggestion, in most instances, 2 cc. (=100 Gm. liver), in several, 4 cc., and in others, various combinations of these amounts. A few patients were given 6 cc. daily for a few injections, with a subsequent reduction to 4 or 2 cc. In several instances, a half pound of liver by mouth was substituted daily for a few days when the supply of liver extract was temporarily exhausted.

The size of the dose seemed to influence somewhat the time of appearance of the peak of increase of reticulocytes and the time of the first appearance of their increase. In most cases in which the peak was reached earlier than the sixth day and the increase was initiated during the second or third day, larger doses had been given. In certain cases there were exceptions, as the larger doses had been given and the increase was initiated and the peak reached at a later date, and in certain other cases the smaller doses had been given and increase was earlier.

The three patients who were given the preparation of Sturgis and Isaacs intravenously were given one injection of 20 cc. (=100 Gm. liver) and one patient was given an additional injection when it appeared that the full effect of the former injection had occurred. Another patient went home four days after the first injection had been given, and the other was operated on. Two of these patients had frank pernicious anemia and one had carcinoma of the stomach associated with pernicious anemia.

The three patients who received the more concentrated preparation intramuscularly were given a small dose (0.5 cc.) to determine if reaction occurred, and in a few hours the remainder of the 3 cc. was given. A second injection of the extract derived from 100 Gm. was given on the second or third or fifth day. Two patients who were given this extract had frank pernicious anemia, and the condition of the other was doubtful; achlorhydria was not present and status epilepticus occurred after injection. One of the two patients had been given the concentrate from 12 cc. of human gastric juice, and because of the subsequent fever and poor general condition, further injections of gastric juice were not made. There was no response in reticulocytes in the ten days following the injection of the small dose of gastric juice, but a marked increase

Summary of Data

Case	Age, Years, and Sex	Treatment in Hospital, Days	Before Treatment: Hemoglobin, per Cent*	Before Treatment: Erythrocytes, Millions	Before Treatment: Leukocytes	Before Treatment: Reticulated Erythrocytes, per Cent	Final Blood Examination in Hospital: Hemoglobin, per Cent	Final Blood Examination in Hospital: Erythrocytes, Millions	Final Blood Examination in Hospital: Leukocytes	Final Blood Examination in Hospital: Reticulated Erythrocytes, per Cent	Last Report: Hemoglobin, per Cent	Last Report: Erythrocytes, Millions	Last Report: Leukocytes	Daily Increase in Erythrocytes	Increase of Reticulocytes Started	Highest Reticulocyte, Percentage	Calculated Peak of Reticulocyte Increase, per Cent	Day With Highest Reticulocyte Percentage, After Treatment Started	Average Amount of Extract per Day, Cc.†	Total Gm. of Liver Represented by Extract Given
								Intramuscular Less Concentrated Extract												
															Day					
1	0 M	21	13	0.88	8,000	2.1	63	2.78	6,000	4.4	82	5.00	9,000	90, 00	5	9.6	38.0	8	2.5	270
2	56 M	18	25	0.92	4,000	0.1	65	2.47	7,400	5.2	97	4.40	7,400	86,100	3	24.4	30.0	10	2.0	180
3	70 F	30	26	0.93	6,400	3.9	44	1.65	12,900	4.7	56	1.70	7,500	24,000	10	11.9	36.2	26	2.0	600
4	49 F	21	24	1.01	4,500	2.6	66	2.90	9,000	3.6	103	4.55	14,200	89,000	2	37.8	34.6	5	4.0	430
5	50 F	21	28	1.18	2,700	7.0	50	3.38	7,800	2.0	71	3.55	6,100	110,000	3	18.0	29.0	4	4.0	420
6	53 F	18	35	1.25	4,200	0.8	55	2.90	4,800	2.8		3.78	.	91,600	3	28.0	27.7	6	3.5	320
7	57 F	25	37	1.57	3,100	0.4	73	3.09	11,100	1.4	70	4.16		60,800	3	10.6	20.4	8	2.4	310
8	43 F	19	31	1.61	3,000	2.8	77	2.95	5,700	2.0	75	3.11	6,400	70,300	7	13.6	20.4	9	2.7	260
9	37 M	23	28	1.68	2,300	1.0	65	3.15	5,000	2.0	90	4.68		63,900	5	17.0	18.7	9	1.9	220
10	52 F	13	42	1.68	5,600	6.8	55	3.16	6,800	13.0				114,000	7‡	18.8	18.7	6	2.0	130
11	30 M	21	40	1.84	3,600	4.6	73	3.14	7,500	2.8				71,400	4	18.4	17.1	6	2.0	210
12	50 M	24	55	1.97	3,100	1.4	91	3.78	4,600	0.4	90	5.22	7,000	75, 00	3	15.2	14.1	8	1.9	2 0
13	53 F	16	70	2.20	6,200	2.4	68	3.48	8,400	2.4				80,000	2	17.0	11.6	5	2.8	230
14	68 M	22	65	2.30	6,000	1.8	91	3.83	10,200	1.0	80	4.81	11,000	69,500	4	16.4	10.[illegible]	9	4.0	440
15	54 M	11	61	2.54	4,200	4.7	86	3.16	6,400	3.8		3.80		74,300	6	9.0	10.5	7	2.0	110
16	77 M	7	61	2.55	4,600	0.8	72	2.57	9,400	9.4	62	3. 0		3,000	4	9.4	8.0	7	3.7	170
17	53 M	10	44	2.36	7,200	5.0	55	3.07	10,200	5.0	80	4.54	11,000	51,000	7	7.8	7.5	5	2.0	100
18	57 F	20	45	2.82	11,400	1.2	66	3.34	13,500	2.8				26,000	7	18.4	5.7	8	2.0	200
19	46 F	8	45	2.84	9,800	1.8	70	3.09	9,400	12.6				31,200	3	12.6	5.7	8	4.0	160
20	67 M	31	60	2.88	7,100	3.4	88	4.16	10,100	1.6				25,100	7	6.4	4.9	9	3.4	870
21	64 F	28	80	2.94	7,200	3.0	105	3.89	9,000	4.0	80	5.40	9,000	54,000	3	11.0	4.9	6	4.0	570
Average	51	20	41.6	1.90	5,438	2.7	69.4	3.14	8,366	4.1	79	4.26	8,860	63,885	4	17.2	18.2	8		
										Intravenous										
															Hour					
22	44 F	7	33	1.09	3,000	1.6	49	2.18	1,400	11.0	61	3.45	3,200	176,000	52	35.2	32.0	5		200
23	68 F	4	32	1.52	3,400	1.0	43	1.66	3,900	25.4				85,000	52	25.4	26.0	4		100
24	44 M	5	58	2.25	7,000	1.2	70	2.31	6,600	21.8	.			12,000	35	21.8	11.1	5		100
								Intramuscular More Concentrated Extract												
25	58 M	7	45	1.55	5,800	2.2	56	2.49	6,200	11.2				163,000	54	31.8	25.4	5		200
26	60 M	6	59	2.03	3,700	1.2	70	2.05	7,000	28.2				3,300	56	38.8	13.3	5		200
27	54 M	7	77	2.76	6,900	5.7	78	3.17	17,500	3.4				58,600	[illegible]‡	7.1	6.1	2		200

* For uniformity, if hemoglobin has been measured in grams it has been converted into percentage by multiplying by six.

† In the few cases in which the supply of liver extract was temporarily exhausted, half a pound of liver was given by mouth for a few days instead of 2 cc. of the extract. In estimating the total grams of liver represented by extract given, half a pound of liver is considered as the equivalent in effect of 2 cc. of the extract.

‡ In these cases the reticulocytes were at a high level at the beginning of treatment.

in reticulocytes began fifty-six hours after the injection of liver extract and reached a peak in five days.

Reactions.—The twenty-one patients who were given the less concentrated material intramuscularly, in general did not complain of unpleasant symptoms except soreness, but sometimes they complained of somewhat severe pain at the site of injection. One complained of a "funny" feeling in the head after the first injection. Fever was not noted after injection if it had not been present before. Extensive studies of blood pressure were not made in this particular group in which frequent small doses were given.

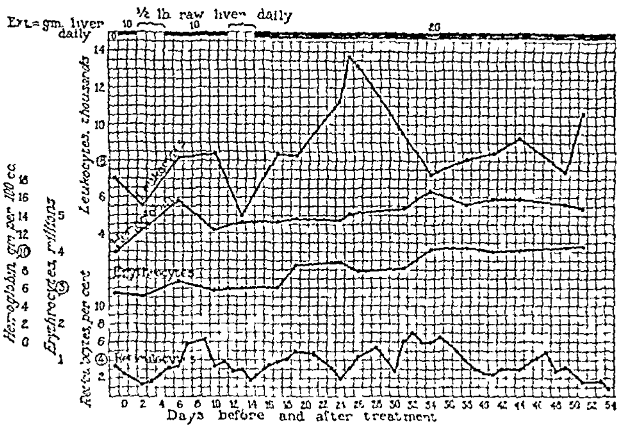


Chart 2.—Results of examination of blood in a case in which liver extract had been given intramuscularly (less concentrated). Failure of reticulocytes to rise to a high point because erythrocytes were relatively numerous at the beginning of treatment may be noted.

Of the three patients who were given intravenous injections, two had a systemic reaction characterized by chill and fever to 100.6 and 103.6 F., and the other patient had fever of 102.8 F. without chill. Two patients, during the period of intravenous injection, complained of an unusual sense of heat, particularly in the face. Studies of the blood pressure were made during and following the intravenous injection, and no significant fall in blood pressure was evidenced.

Of the three patients who were given the more concentrated preparation intramuscularly, one had status epilepticus shortly after the second of two daily injections of 3 cc. (= 100 Gm. liver) had been given following a preliminary dose of 0.5 cc. without reaction. Whether this was due to the injection or to the temporary withdrawal of phenobarbital, because of phenobarbital dermatitis, cannot be determined, but the latter seems likely. This patient had the blood picture of pernicious anemia without achlorhydria, also syphilis of the central nervous system, and was given the injection as a diagnostic procedure. The blood pressure was taken frequently after the injections, and no change of consequence was noted. The other two patients did not manifest noticeable reaction after any injection. All three patients were given the preliminary dose of 0.5 cc., followed in a few hours by 2.5 cc.

Increase of Reticulocytes.—After the intramusuclar injection of the less concentrated material, the reticulocytes usually increased rather rapidly, beginning from two to ten (average four) days after the first administration and reaching a peak in from four to twenty-six (average eight) days, from which there was a rapid fall to normal within a few days (chart 1 and table). In a few cases the reticulocytes increased more slowly, in one complicated case reaching a peak on the twenty-sixth day (charts 2 and 3). The peak of increase of reticulated erythrocytes varied in the different cases from 6.4 to 39.6 per cent and averaged 17.2 per cent (table).

Following the intravenous injections the peak of reticulocytes was reached early, in four and five days (chart 4), and the increase started in thirty-five, fifty-two and fifty-two hours, respectively. The peaks of reticulocyte increase were 35.2, 25.4 and 21.8 per cent (table).

After the intramuscular injection of the concentrated extract, the reticulocytes began to rise at the fifty-fourth hour, the fifty-sixth hour and at a questionable hour and reached the peak of increase in five, five and two days (chart 5). The peaks of reticulocyte increase were 31.8, 38.8 and 7.1 per cent (table). By all methods of specific treatment, the peak of increase of reticulocytes is essentially inversely proportional to the number of erythrocytes at the beginning of treatment.

In most cases the peak of increase of reticulocytes reached or exceeded the theoretical peak, as computed according to the formula of Riddle[27] (table). In a few cases this theoretical peak was not reached, but it is likely that the actual peak of increase of reticulated erythrocytes in these cases was reached in the interval between examinations, which were, as a rule, made daily. In some cases the reticulocytes were estimated three times daily during the few days immediately preceding, during and following the peak of increase of reticulated erythrocytes (charts 4 and 5), and in these the theoretical peak was reached in each case.

Unfortunately, each of the three patients who had the intravenous injections was, for unavoidable reasons, dismissed from hospital at so early a date that little more than the increase of reticulocytes (charts 4 and 6) could be determined; one of these has been observed at weekly intervals since (chart 6), and she returned to the hospital on the thirteenth day for a second intravenous injection. It was desired to see how long the effect of one injection would last so the second dose was not given until the increase of reticulocytes had entirely subsided, and a third dose has not yet been given because the level of erythrocytes and hemoglobin continued to increase thirty-four days after the last injection.

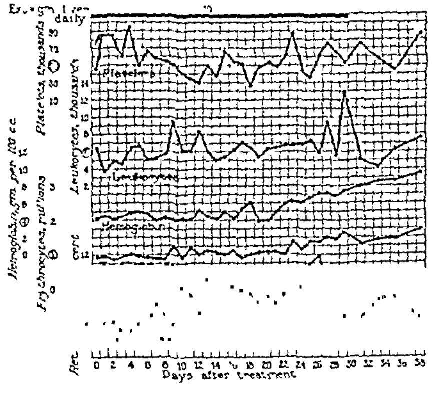


Chart 3.—Results of examination of blood in a case of pernicious anemia complicated by decompensated heart disease, while less concentrated liver extract was being given intramuscularly. Failure of reticulocytes to reach a peak for twenty-six days and the slight increase in erythrocytes may be noted. Necropsy showed typical changes of pernicious anemia in bone marrow

One of the three patients in this group also had carcinoma of the stomach. As soon as a rapid increase

---

27. Riddle, M. C.: Pernicious Anemia: Blood Regeneration During Early Remission, Arch. Int. Med. 46:417 (Sept.) 1930.

of reticulocytes was demonstrated, as additional evidence of the existence of pernicious anemia in association with carcinoma, a transfusion was given and operation performed. A large carcinoma of the stomach was found, but could not be removed. This rapid increase of reticulocytes with liver extract is further proof of the occasional coexistence of pernicious anemia and carcinoma of the stomach. I have observed several of such cases.

Increase in Hemoglobin, Erythrocytes, Leukocytes and Platelets.—The erythrocytes on the whole increased the more rapidly the lower their level at the beginning of treatment. The platelets increased in three fourths of the cases in which they were estimated. See table and reprints.

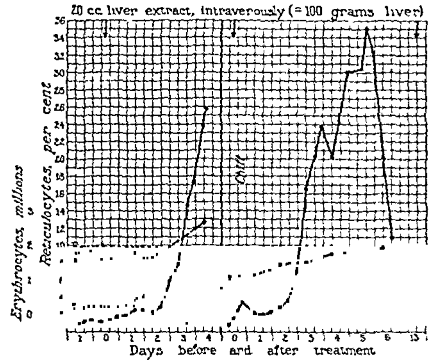


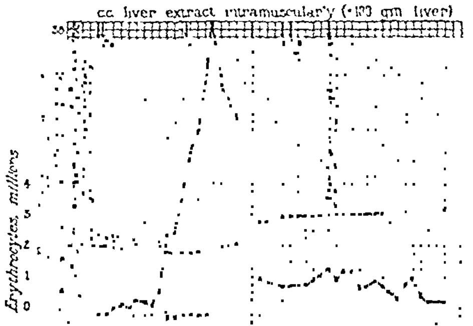
Chart 4.—Level of reticulocytes and erythrocytes in cases of pernicious anemia in which liver extract was given intravenously. Reticulocytes were counted three times daily during period of active increase. Peak on fourth (probable) and fifth day, and beginning increase soon after injection may be noted.

Morphology of Blood.—The changes in morphology of the blood were studied more carefully in cases in which the treatment was intravenous, and in those in which the more concentrated preparation was given intramuscularly. In all cases there was definite macrocytosis and well marked anisocytosis in the beginning. In most cases the so-called pernicious anemia neutrophil was present in the beginning with a shift of the polymorphonuclear leukocytes to the right. A few days after treatment was instituted the macrocytosis increased in some instances, and if this had not been well marked before treatment, it often became evident. As the condition of the blood improved, the macrocytosis usually almost completely disappeared. With the effect of treatment, the right shift in the leukocytes usually partially or completely disappeared and the so-called pernicious anemia neutrophil might or might not be entirely absent. Polychromatophilia, which was present in some degree in all cases of severe anemia, disappeared or diminished as improvement occurred. Basophilic stippling, if present in the beginning, usually disappeared. Eosinophilia was observed in only two cases during treatment. In one case the value was high (4.6 per cent) at the institution of treatment, and increased to 10.2 per cent. In the other, the eosinophils constituted 15 per cent of the total number of leukocytes at the time of institution of treatment. This patient had eaten a small amount of raw liver prior to my examination, but it seemed unlikely that the amount had been sufficient to produce eosinophilia of this degree.

Chemical Constituents of the Blood.—The changes in the chemical constituents of the blood were essentially the same in patients treated by the three different methods (chart 9). There was decrease in the bilirubin of the serum, usually to about half the original amount, the iron in the blood increased, and the iron index,[28] which apparently is always high in pernicious anemia in relapse, decreased toward normal. There was no significant change in the sugar, the uric acid or the urea of the blood.

Effect on Symptoms.—The effect of all preparations on the general symptoms was essentially the same as that obtained by the use of liver or liver extract taken by mouth, but on the whole it seemed to be brought about more rapidly; of the three methods, the intravenous administration seemed to bring about the most rapid improvement, and next to it the more concentrated material injected intramuscularly. The strength rapidly increased, the general well being of the patient was markedly enhanced, the appetite soon returned, the subicteric color of the skin and sclera disappeared, the gastro-intestinal symptoms usually subsided rapidly, diarrhea, when present, ordinarily disappeared and glossitis soon subsided.

Effect on Neurologic Disorders.—I have not noticed from the injection of any of these preparations a definite advantage over the effective materials given orally in cases of involvement of the nervous system. None of the patients among the two small groups treated by intravenous injection and by the more concentrated material intramuscularly had serious neurologic disorders. There were, however, five patients with severe neurologic involvement in the group treated with the less concentrated material, and two had moderately severe involvement. The five patients had severe combined sclerosis and were unable to walk. All but one of this group of twenty-one patients complained of numbness and tingling in the hands or feet at some time in the course of the illness. In most instances when this was the sole manifestation of neurologic involvement, symptoms improved or disappeared. However, when the symptom occurred as a part of marked combined degeneration, little improvement seemed to occur. One patient, whose condition was moderately severe, was unable to write and walked with considerable difficulty before he was put under treatment. At the time he left the hospital, twenty-



*Reticulocytes not above 15% in these 9 days before liver extract

Chart 5.—Level of reticulocytes and erythrocytes in cases of pernicious anemia in which liver extract was given intramuscularly (more concentrated). Reticulocytes were usually counted three times each day. The second case is a doubtful one without achlorhydria but with blood picture of pernicious anemia. Peak of reticulocytes in five days in first case and failure to increase much in second case, partially because reticulocytes were high at the beginning and partly because erythrocyte level was high, may be noted.

---

[28] Murphy, W. P.; Lynch, Ralph; and Howard, Isabel M.: The Value of Determinations of the Iron Content of Whole Blood, Arch. Int. Med. 47:883 (June) 1931.

two days later, he was able to walk without a cane and to write with some difficulty. A patient with moderate involvement of the nervous system did not improve in the seven days in hospital, but an answer to a questionnaire stated that he had improved considerably since going home. One patient with severe involvement of the nervous system was able to walk with great difficulty when he came to the hospital and was unable to walk when he left, although there was a satisfactory improvement in the condition of the blood. Another patient with severe involvement of the nervous system was entirely bedridden during her stay of seven days in hospital; one was entirely bedridden during the period of sixteen days of hospitalization; one with severe neurologic involvement made little, if any, improvement. One patient who had severe involvement of the nervous system following operation for carcinoma of the stomach did not improve under observation in hospital for ten days, but in answer to a questionnaire stated there was a little improvement since he went home.

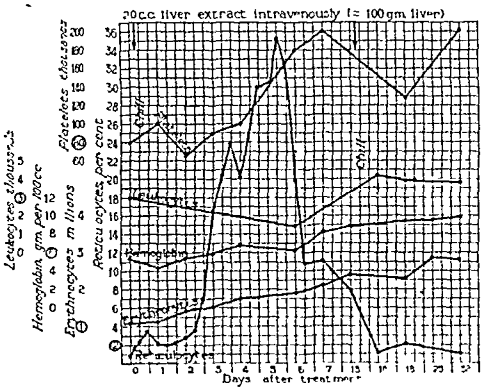


Chart 6.—Results of examination of blood in cases of pernicious anemia after intravenous injection of liver extract. Reticulocytes were counted three times a day.

It is possible that a more marked beneficial effect may occur as the result of much more prolonged treatment by the injection of liver extract, and that lack of good results in most cases of severe involvement of the neurologic system may be due to the comparatively short time the patients received the injections.

Effect of Complications on Result of Treatment.—Complications of various kinds occurred in a number of cases, but did not, as a rule, appreciably affect the progress of the recovery. Perhaps, in one case in which neurologic changes were severe, mild bronchopneumonia retarded the response to treatment. Another patient had mild bronchopneumonia, and there was fever during most of the patient's stay in the hospital, but without apparent effect on regeneration of erythrocytes. The peak of reticulocyte increase, however, in this case failed to reach the theoretic peak by a considerable degree. In two cases syphilis of the central nervous system (besides that in the doubtful case without achlorhydria) did not seem to affect the rapidity of response. In two cases there was probable cholecystitis; in one of these no effect on the increase in reticulocytes or erythrocytes seemed to occur, whereas in the other there was very slow and moderate response of reticulocytes and erythrocytes. This, however, was in the case in which pneumonia and severe neurologic changes were also present, which latter did not respond to prolonged treatment (fifty-one days) (chart 2). One patient had carcinoma of the stomach, for which he was operated on, and during his stay in the hospital, following operation, the anemia and the neurologic changes rapidly became more intense. This patient also had a cord bladder; there were two other such cases in the group. This complication, however, did not seem to influence appreciably the response to treatment. One patient had angina pectoris with coronary sclerosis, urticaria of the skin, probable abdominal urticaria and low basal metabolic rate. There was, however, a moderately rapid increase in erythrocytes, but the increase of reticulocytes failed to reach the theoretic peak by almost half. One patient had marked vertigo, nausea and nystagmus which subsided after improvement occurred in the blood. Two patients had hemorrhoids, two nontoxic adenomas of the thyroid gland, three had chronic prostatitis, one patient had hay fever, one optic atrophy, one tuberculosis of the spine, one chronic tonsillitis and one grand mal (besides the doubtful case without achlorhydria), none of which seemed to influence the speed of recovery. One patient had fever of unknown cause for three weeks, and a cord bladder; it is probable that pyelitis resulted therefrom. Cystoscopic examination was not deemed desirable. There was a good reticulocyte response with a peak higher than the theoretic peak and a very satisfactory increase in erythrocytes, but no improvement in the neurologic condition. Some patients had several of these complications combined.

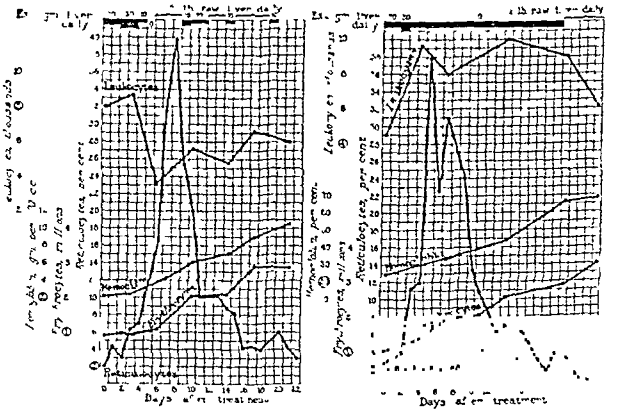


Chart 7.—Results of examination of blood in cases of pernicious anemia in which liver extract (less concentrated) was given intramuscularly. In one case, raw liver was given when the supply of extract became temporarily exhausted, and in the other, raw liver was given during the last five days in hospital. High reticulocyte peak and rapid increase in hemoglobin and erythrocytes may be noted.

In one case there was a typical blood picture of pernicious anemia with achlorhydria, high hemoglobin index and volume index and indefinite complaint of sore tongue. Daily injection of the extract derived from 10 Gm. of liver did not cause reticulocyte response for eight days, and there was practically no increase in erythrocytes from the original level of 1,000,000 cells for several weeks (chart 3). Later, the reticulocytes rose to 12 per cent and the erythrocytes to 1,700,000 but further increase could not be obtained. The patient had cardiac enlargement with severe cardiac symptoms, particularly dyspnea and edema. In spite of daily intramuscular injection of 2 cc. of the less concentrated extract she died from cardiac failure. At necropsy, in addition to other evidence of pernicious anemia, hyperplastic marrow of all the bones examined, including the shaft of the femur, was found. This was in a patient with senile dementia confined to the state hospital, who was treated in collaboration with Dr. Everts of that institution.

Other Treatment.—Transfusion was deemed necessary in only one case, possibly because the lowest initial level of erythrocytes was 880,000. Three of the patients were given dilute hydrochloric acid; one patient was given a cod liver oil concentrate and yeast, and two patients were given food rich in vitamins, including yeast and cod liver oil or its concentrate. One patient two years previously had been given raw swine stomach at the clinic with good results, but while taking this in an amount ordinarily considered adequate she had a relapse, from which recovery was brought about by the use of extract of fish liver. Later, when taking this extract, another relapse occurred during which a very severe neurologic syndrome developed. The blood responded satisfactorily to the daily intramuscular injection of 4 cc. of the less concentrated liver extract, but there was little, if any, effect on the neurologic symptoms.

One patient had formerly been treated successfully by means of a diet rich in vitamins containing a small amount of liver. She had become careless and had practically discontinued the diet, after which she had a relapse with severe neurologic symptoms. In spite of satisfactory improvement in the blood obtained by the intramuscular use of the less concentrated liver extract, from 2 to 4 cc. daily, while in the hospital there was little, if any, improvement of neurologic condition.

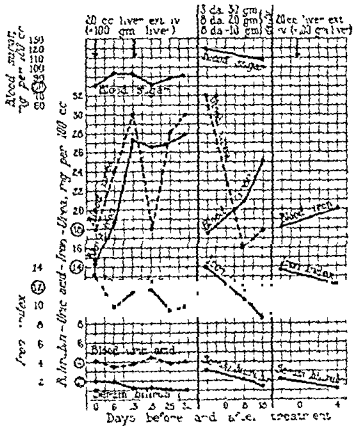


Chart 9.—Results of chemical examination of the blood in cases of pernicious anemia in which liver extract was given intravenously and less concentrated extract intramuscularly. Decrease in serum bilirubin and iron index and increase in iron of whole blood in all instances may be noted. Significant change in sugar, urea or uric acid was not observed.

One patient had formerly been given desiccated hog stomach and had a relapse while taking what would otherwise be considered an adequate dose of 30 Gm. daily; he made rapid and satisfactory response to intramuscular injection of the less concentrated liver extract.

One patient, prior to the administration of the less concentrated liver extract intramuscularly, had been given cooked oysters, a half pound daily, for fourteen days. During the administration of the oysters the reticulocytes had increased from 1.6 to 7.2 per cent. Following the administration of liver extract intramuscularly, however, there was a second increase to 18.4 per cent on the eighth day after the first injection.

Subsequent Treatment.—All of the patients who received the less concentrated preparation intramuscularly were sent home to use liver, liver extract or raw or desiccated stomach by mouth. It did not seem wise to have them make their own injections of the liver extract. Because of this fact, it has been difficult satisfactorily to evaluate the effect of the injection method on the neurologic changes in pernicious anemia, as most of the patients did not continue the treatment long enough to bring about marked change, or any change in some instances. Two of the patients who received extract intravenously were instructed to use liver at home, and the other patient is still being observed without further treatment after two injections of 20 cc. (100 Gm. liver) with an interval of thirteen days. The patients treated with the more concentrated material are still under observation in hospital.

Maintenance Dose.—As my patients were given the injections only during their stay in hospital and were given oral treatment when they were sent home, any statement regarding maintenance dosage would necessarily not be based on first-hand knowledge.

COMPARISON OF THE THREE METHODS

The results obtained by the use of the less concentrated preparation by frequently repeated intramuscular injections are not so striking as those obtained by the intravenous injections or by the intramuscular injections of the more concentrated material. The reactions with the less concentrated preparation were negligible whereas those that occurred from the intravenous injection or in one case the more concentrated material intramuscularly, were much more severe and in some instances rather alarming. The question, of course, arises whether one is justified in producing any considerable reaction by the injection of the larger doses when the smaller more frequently repeated injections are just as efficacious in the long run. There arises also the question as to whether it is not better to stimulate the bone marrow gradually by means of smaller doses than more intensely at longer intervals by injection of more concentrated material. However, the frequently repeated injections are too expensive unless one can send the patient home to carry on the injections himself, which does not seem wise. All in all, it seems quite likely that the injection treatment of choice consists of the intramuscular use of the more concentrated material, an adequate amount of which can be obtained at a comparatively small cost.

COMPARISON WITH ORAL METHOD OF TREATMENT

Since, in our experience, the neurologic changes have not responded appreciably more satisfactorily to the injection treatment (although admittedly treatment was too short to permit a satisfactory opinion) than to liver, liver extract, raw stomach, desiccated hog stomach or diet selected for its rich content of vitamins, each of which is given by mouth, it seems unlikely that the injection treatment can entirely supplant treatment by the oral method, particularly among those who do not object to the use of liver or raw stomach. Pork or beef liver and stomach can be bought at moderate cost. It may be open to question, too, whether the liver extract has all of the beneficial properties of raw liver, raw stomach or desiccated stomach. It is likely that the injection treatment will be of greatest benefit to patients who are extremely ill, patients who have extreme anorexia and are unable to take liver or other effective substance by mouth, patients who are vomiting a great deal, patients who particularly dislike liver or any of the other effective materials, and the very rare patient who manifests symptoms of gout as a result of the administration of liver.

SUMMARY

Thirty patients with pernicious anemia were given liver extract by injection. Twenty-seven were studied in hospital. Twenty-one patients received extract intramuscularly in which 2 cc. is derived from 10 Gm. of liver, and the dose of which was 2 to 6 cc. daily. Three received extract intravenously in which the dose of 20 cc. was derived from 100 Gm. of liver. One or two doses were given in hospital. Three patients were given extract intramuscularly in which the dose of 3 cc. represented 100 Gm. of liver. Two doses were given one, two and four days apart, after a preliminary dose to determine if reaction occurred.

The extract from a very small amount of liver produces maximal effect.

The effect on reticulocytes, hemoglobin, erythrocytes and other blood elements and general symptoms is similar to but more rapid than those produced by oral treatment.

The effect on neurologic symptoms cannot be properly evaluated in this series because the patients were sent home to receive treatment by mouth or were not observed long enough to permit any opinion; however, the results obtained suggest that the effect in severe cases will continue to be unsatisfactory, as in cases in which the oral method was used.

Untoward symptoms, except pain, did not occur in cases in which intramuscular injection of the less concentrated extract was given daily. Chills occurred in two cases and fever in three cases in which intravenous injections were given. Reaction was not directly attributable to intramuscular injection of the more concentrated extract, but in one case status epilepticus occurred after the second of two injections in a case of epilepsy and syphilis of the central nervous system.

ABSTRACT OF DISCUSSION

Dr. John H. Musser, New Orleans: There is no doubt that there are certain types of patients with pernicious anemia to whom it is occasionally advisable to give liver by some method other than by mouth. I was a little worried, until Dr. Conner's last sentence, to know the reason why he had such a considerable series of patients to whom he had given this preparation. I was not worried in the sense that I feared he was going to give the preparation to all his patients, but why he had such a group of patients with severe anemia. It seems to me, of course, that the great merit of his presentation was that liver extract is available for intravenous use. I want to stress that point. I was rather afraid that the idea would get about that liver is best administered by injection. I think it would be a great mistake if such an impression should be broadcast throughout the medical profession in this country. Undoubtedly the great majority of patients with pernicious anemia will get along satisfactorily and will have a proper reticulocyte response when the liver extract is given by mouth. I think that is the method of choice in the great majority of instances. Dr. Conner has told of the patient, however, to whom liver extract cannot be given by mouth, and it is to that type only that I think liver should be given intramuscularly. The patient is extremely rare—and I think Dr. Conner will substantiate the statement—to whom the extract should be given intravenously. There are certain inherent dangers in all intravenous medication. I think intravenous medication of this type should be given in the same spirit with which drugs are administered intravenously. It is interesting that pharmacologists and those interested in the administration of animal preparations, such as insulin, are striving most vigorously for methods of administering the drug other than through injection; possibly their efforts at some time will be successful. On the other hand, there is a drug which seems satisfactory in a great majority of instances when given by mouth, and yet people all over the country are interested in this problem of giving parenterally liver extract, or the gastric juice of swine, or whatever it may be, to patients with pernicious anemia. I think it seems rather paradoxical.

Dr. H. Milton Conner, Rochester, Minn.: I believe very much as Dr. Musser does that we are striving to see that the average patient is able to take by mouth what formerly has been given only by injection, for instance, insulin, and that, on the whole, no patient should be treated by injection either intravenously or intramuscularly who can just as well be treated by mouth. Certainly there are some cases in which, as I mentioned last, the injection method seems to me to be distinctly indicated. I am not much in sympathy, however, with the claim of lessened cost. The injection method has been stressed as being much cheaper. It certainly is not cheaper than liver or stomach. Either the raw stomach or raw or cooked liver, particularly beef or pork liver, is very cheap. So if the patient is able to take these I believe they ought to be taken orally rather than in the form of liver extract in frequent injections either intramuscularly or intravenously.

HYPERTHYROIDISM SHOWING CARBOHYDRATE METABOLISM DISTURBANCES

TEN YEARS' STUDY AND FOLLOW UP OF CASES

HENRY J. JOHN, M.D.
CLEVELAND

For several decades writers in this country and abroad have reported the coincident finding of glycosuria in some cases of hyperthyroidism. Joslin and Lahey,[1] in their recent study of 500 cases of disease of the thyroid, reported the occurrence of glycosuria in 38.6 per cent of 228 cases of primary hyperthyroidism and in 27.7 per cent of 83 cases of adenomatous goiter with secondary hyperthyroidism, as compared with only 14.8 per cent in 189 cases of nontoxic goiter and 13.6 per cent of patients without diabetes or any disease of the thyroid gland. In a series of 100 dextrose tolerance tests which I[2] did in 82 cases of hyperthyroidism and 10 cases of colloid goiter, there was a fasting glycosuria in 19 per cent. In table 1 are given the reports of various authors as to the incidence of glycosuria in cases of hyperthyroidism.

Table 1.—*Glycosuria in Hyperthyroidism*

Author	Number of Cases	Percentage of Cases Showing Glycosuria
Marsh	...	2.0
Joslin and Lahey:		
Primary hyperthyroidism	228	38.6
Secondary hyperthyroidism	83	27.7
Nontoxic goiter	189	14.8
Schulze	16	25.0
John: present publication	100	19.0
Bryan:		
Toxic adenoma	244	3.2
Nontoxic adenoma	982	1.0
Exophthalmic goiter	361	1.1

When chemical analyses of the blood began to be generally used, hyperglycemia, either with or without glycosuria, was demonstrated in sporadic cases of hyperthyroidism. A review of the literature showing the incidence of hyperglycemia in hyperthyroidism (table 2) shows a great discrepancy in the findings of different investigators.

Experimental studies on animals made to determine the relation of the thyroid gland to the blood sugar content showed that extirpation of the thyroid gland

---

From the Cleveland Clinic.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

[1] Joslin, E. P., and Lahey, F. H.: Diabetes and Hyperthyroidism, Am. J. M. Sc. **176:** 1-22 (July) 1928.

[2] John, H. J.: Carbohydrate Metabolism in Hyperthyroidism, Endocrinology **11:** 497-581 (Nov.-Dec.) 1927.

leads to a lower blood sugar level, while, on the other hand, the injection of thyroxin, the feeding of hashed thyroid gland to animals or the injection of thyroid extract produces hyperglycemia. In other words, various workers tried to duplicate the clinical finding of hyperglycemia in the syndrome of hyperthyroidism. Many observations regarding the thyroid-blood sugar relation in human beings are recorded.

The incidence of hyperthyroidism among cases of diabetes is comparatively low, as can be gleaned from table 3, the average being 1.68 per cent. A diabetic patient is, of course, subject to the same ailments as is a nondiabetic person. The incidence of diabetes among cases of hyperthyroidism, on the other hand, is a fairly consistent figure, as can be gleaned from table 4, and is nearly twice as high as the general incidence of diabetes.

The present study comprises clinical and laboratory observations made over a period of ten years, including an intensive study made during the period from Jan. 1 1925, to Oct. 1, 1931. During this time, about 9,000 cases of thyroid disease have been seen in the Cleveland Clinic, most of which were cases of hyperthyroidism (exophthalmic goiter, adenoma with hyperthyroidism). Of this group, 620 cases, or 6.88 per cent, showed some degree of nonphysiologic hyperglycemia (fasting or two and one-half hours or more postprandial) either with or without glycosuria. During these years, it has been the practice of my associates and myself to make a routine blood sugar estimation in every new case, as this gave much information about many unsuspected cases of diabetes which would not have been picked up otherwise. Most of the cases, which showed some degree of nonphysiologic hyperglycemia, were then followed up and studied further for a period up to ten years. These data I am offering here.

TABLE 2.—*Incidence of Hyperglycemia in Hyperthyroidism*

Author	Number of Cases	Percentage of Cases Showing Hyperglycemia
Fitz	1,800 *	0.5
Wilder	2,340 *	0.6
von Noorden and Isaac	1,000	0.6
Wilder	1,131 †	2.0
Sattler		3.0
Lund and Richardson	29	3.4
John: present publication	9,000	6.88
John: 1928	3,335	8.5
Mojarova	84	25.3
Flesch		60.7
Geyelin	27	90.0
Total	18,746	

* Exophthalmic goiter
† Toxic adenoma

When the 620 cases showing nonphysiologic hyperglycemia were followed up further, it was found that in some cases the hyperglycemia was present in only the primary examination and that in some others the hyperglycemia disappeared without any medication. Consequently, these cases are not included in my consideration. In some other cases the patients have not been observed for a long enough period to be included in this series. In some cases inadequate data were available, and for that reason they are not included. Intensive observations over a period of from one to ten years were made on 166 cases which alone are included in this special study. All of these showed a definite disturbance of carbohydrate metabolism. The number of years the patients in this series have been under observation is shown in table 5.

By a very conservative estimate, however, I should say that about 200 cases showed what might be called definite hyperglycemia like that of diabetes. In some of these cases the hyperglycemia was purely functional in type and therefore disappeared in a few weeks or months after thyroidectomy on dietary treatment alone or combined with insulin, but—as further experience taught me—the hyperglycemia would not have disappeared in all cases without such treatment. In the total of 620 cases of hyperthyroidism in which hyperglycemia was present, it remained in 30 per cent and disappeared in 70 per cent. This makes the incidence of diabetes in this series of cases of thyroid disease 2.1 per cent, a figure that is close to the average incidence of diabetes in cases of hyperthyroidism as reported in the literature (2.3 per cent). Thus, of this series approximately 200 patients remained diabetic and had to be treated as such, and 35.7 per cent of them are still taking insulin in order to control the diabetic state.

TABLE 3.—*Incidence of Hyperthyroidism in Diabetes*

Author	Number of Cases of Diabetes	Number of Cases with Hyperthyroidism	Percentage
Greeley	614	6	0.97
Joslin and Lahey	4,917	.	...
Primary hyperthyroidism	.	43	0.87
Toxic adenoma	.	28	0.57
Simple goiter		4	0.08
Wilder	1,249		..
Primary hyperthyroidism		14	1.10
Toxic adenoma		22	1.80
Rabinowitch	3,000	24	0.80
von Noorden	1,000	30	3.00
Murphy Moxon	827	8	0.96
		Average	1.68

This summarizes briefly the problem and is an answer to those who try to offer an academic discussion of this subject, which, interesting as it may be from the standpoint of the laboratory, cannot be fully adopted by a clinician who has to treat these patients, many of them for the rest of their lives.

This point is well illustrated by the report of Sattler,[3] who in 1909 collected 56 reported cases in which diabetes was associated with hyperthyroidism. Thirty-seven of these cases had been followed for a sufficient length of time to afford positive information. Of these 37 cases, in 24 (64.8 per cent) there was a fatal termination within comparatively short periods of time, and in 7 cases the patients died in coma.

TABLE 4.—*Incidence of Diabetes in Hyperthyroidism*

Author	Thyroid Disease	Diabetes	Percentage
Joslin and Lahey: total hyperthyroidism	5,908	75	1.26
Primary hyperthyroidism	1,751	43	2.5
Secondary hyperthyroidism	...	28	4.3
Sattler	1,866	56	3.0
O'Day	....	4	.
Fitz	1,800	9	0.5
John: all thyroid diseases	9,000	207	2.3
		Average	2.31

The incidence of diabetes in this special series of 166 cases and its distribution, according to sex and decades, are given in table 6. The highest incidence is in females, as one would expect, since the highest incidence of hyperthyroidism occurs in females. As for the age distribution of the associated occurrence of diabetes and hyperthyroidism, I have tried to discover how it compares with the age incidence of diabetes without hyperthyroidism, and I have found that the two curves run quite parallel, as shown in chart 1. This suggests that hyperthyroidism does not play any important etiologic rôle so far as the age incidence is concerned. Table 7 shows clearly the priority in appearance of hyperthyroidism, which occurred in 85.5 per cent in primary hyperthyroidism and in 51.9 per cent in toxic adenomas, an observation that may have an important etiologic significance.

---

[3] Sattler: Die Basedowische Krankheit, Leipzig, Wilhelm Engelmann, 1909, vol. 1, p. 384.

In table 8 I offer an analysis of the 166 cases in this series in order to show the progress of the patients. After thyroidectomy 55 per cent of the patients improved as far as their diabetic status was concerned, in 15 per cent the diabetic condition remained stationary, and in 30 per cent the patients either required more insulin or, if not taking insulin, it is but a question of time until insulin will have to be administered. As stated, 35.7 per cent of the entire group are still taking insulin.

It is obvious that glycosuria in itself does not tell a great deal regarding the status of the carbohydrate metabolism unless one knows also the blood sugar response to the ingestion of carbohydrates and the level of the renal permeability to sugar. In a series of 100 dextrose tolerance tests which I did some years ago in 82 cases of hyperthyroidism and 10 cases of colloid goiter, 66 per cent of the curves indicated an impaired tolerance. In a larger series of 239 cases of hyperthyroidism which I[4] published in 1930, 63.5 per cent showed an impaired tolerance. Such an incidence is high and ranks as high as obesity (65.6 per cent). The renal threshold, on the other hand, estimated in 180 cases of hyperthyroidism, was low; thresholds for sugar below 180 occurred in 81.1 per cent of the cases. The average renal threshold was 147. The excretion of sugar by a patient with a low renal threshold is usually of little or no significance. The measure of sugar excretion by the application of Allen's paradoxical law,[4a] however, does throw some definite light on the differentiation of glycosuria in this group of cases and is of distinct value, as Rabinowitch has shown. However, I should offer a caution as to any hurried diagnosis until such a case has been followed up over a sufficiently long period for one to make sure of his premises, as no single laboratory functional test should ever be considered as final.

Table 5.—*Length of Observation on 166 Cases of Hyperthyroidism and Diabetes Over a Period of Years (John)*

Years of observation	1	2	3	4	5	6	7	8	9	10
Number of cases	82	32	19	11	8	4	1	–	1	8

Table 6.—*Incidence of Diabetes and Hyperthyroidism and its Distribution According to Sex and Decades (166 Cases, John)*

Age decade	II	III	IV	V	VI	VII	Percentage
Male		1	9	11	8	5	20
Female	1	4	13	37	53	23	80
Total	1	5	22	48	61	28	
Percentage	0.6	3.0	13.2	28.9	36.7	16.8	..
Joslin and Lahey	Male, 19 and female 81 per cent						

Table 7.—*Priority in Appearance of Hyperthyroidism or Diabetes in 152 Patients, According to Joslin*

		Hyperthyroidism Precedes Diabetes	
Condition	Number of Cases	Number of Cases	Percentage
Primary hyperthyroidism			
Fitz, primary and secondary not differentiated	22	21	95.5
Wilder	12	9	75.0
Joslin Lahey	28	23	82.1
Total	62	53	85.5
Secondary hyperthyroidism			
Toxic adenoma			
Wilder	19	9	47.4
Joslin Lahey	8	5	62.5
Total	27	14	51.9
Sattler	56	37	66.0

HEPATIC LESIONS ASSOCIATED WITH HYPERTHYROIDISM

The liver in a case of hyperthyroidism is supposed to be glycogen-poor; it either does not bind dextrose or else lets it go too readily, or there is such an enormous demand for the dextrose in the body that it is rapidly used up and has no chance of being stored in the liver. In an editorial in the *Annals of Internal Medicine*,[5] regarding the hepatic lesions associated with exophthalmic goiter, the author brings out the following points: "Patients dying in exophthalmic goiter show some degree of simple or pigmented atrophy, but the most marked change was the very frequent occurrence of marked diffused fatty degenerative infiltration bearing all the earmarks of a severe toxic process (like the classic phosphorus liver). The heart and the kidneys presented a marked fatty degenerative infiltration." The author explained these changes as being the result of acute disturbances in the oxygenation of the body resulting from or dependent on the syndrome of exophthalmic goiter. "The livers further show at times a peculiar form of chronic parenchymatous hepatitis in the form of lymphocyte infiltration, bile duct proliferation and increase in stroma of the islands of Glisson." To study these changes, Weller[6] studied 44 autopsies on patients who had shown no condition other than hyperthyroidism;

Table 8.—*Analysis of 166 Cases of Hyperthyroidism and Diabetes (John)*

	Percentage
Male	20.0
Female	80.0
Diabetes severe in	31.0
Diabetes mild in	69.0
Hyperthyroidism severe in	35.0
Hyperthyroidism mild in	65.0
After thyroidectomy	
Diabetes improved in	55.0
Of these still taking insulin	23.5
Diabetes more severe in	30.0
Of these still taking insulin	46.0
Diabetes stationary in	15.0
Of these still taking insulin	62.0
All patients still taking insulin	35.7

---

[4] John, H. J.: A Study of 1,100 Glucose Tolerance Tests, M. J. & Rec. **131**: 287 (March 19), 351 (April 2), 398 (April 16) 1930.

[4a] The more the carbohydrate taken by a diabetic patient, the less is utilized.

[5] Editorial: Hepatic Lesions Associated with Exophthalmic Goiter, Ann. Int. Med. **4**: 501 (Nov.) 1930.

[6] Weller, C. V.: Hepatic Lesions Associated with Exophthalmic Goiter, Tr. A. Am. Physicians **15**: 71-76, 1930.

his report is shown in table 9, which was presented before the Association of American Physicians in 1930.

Weller summarized his findings as follows:

> A well marked chronic parenchymatous hepatitis was found at autopsy in 22 of 44 selected cases of Graves' disease, while but one case of the same degree of hepatic lesions was found in a control series of the same number of autopsies. In the Graves' disease group, only six showed no evidence of hepatitis while in the control series 30 out of the total of 44 cases showed no hepatitis. The coincidence of hepatitis with exophthalmic goiter is therefore significant and is in accord with clinical observations of the occurrence of functional disturbance of the liver in cases of Graves' disease.

Simonds and Brandes[7] rendered dogs thyrotoxic by heavy thyroid feeding (for from thirty-two to one hundred days). The livers of these dogs were practically devoid of glycogen.

Asher[8] found that in animals made absolutely free from carbohydrate by thyroid feeding and phlorhizin, the addition of fat to the food increased the output of sugar. From this he decided that the hyperthyrotic liver possesses the ability to form glycogen but cannot fix it so that after its formation it gives it up.

Charvát and Gjurič,[9] who studied the problem of carbohydrate metabolism in hyperthyroidism, came to the conclusion that the liver in cases of exophthalmic goiter is the cause of hyperglycemia because it does not bind its glycogen in a stable manner, its glycogen is labile and the tissues burn dextrose well; furthermore, in order to use up as much of the circulating dextrose as possible, the renal threshold in hyperthyroidism is raised.

Table 9.—*Weller's Data*

	Hyperthyroidism	Controls
Number of cases showing no hepatitis....	6	30
Number of cases showing slight or moderate hepatitis	16	13
Number of cases showing well marked hepatitis	22	1

These authors offered as an explanation that in exophthalmic goiter a condition of liver shock is present in which the glycogen-poor liver binds glycogen very loosely and lets go of it easily, whereas the tissues in patients with hyperthyroidism need sugar badly as a ready and excellent supply of energy; moreover, sugar does not burden the organism with any specific dynamic action as do fats and proteins. As the liver through the lability of its dextrose causes a marked hyperglycemia, the renal threshold is easily crossed and theoretically glycosuria should result in all cases. This, however, is not the case, as Charvát and Gjurič have shown, for the threshold rises in order to enable the tissues to use up a greater portion of the dextrose.

In view of their experiments the authors studied the arterial and the venous blood sugar for a period of several hours after the injection of physiologic solution of sodium chloride in normal persons and in patients with diabetes and again in cases of hyperthyroidism. In normal persons they found that without the injection of saline the arterial and the venous sugar fluctuates but inappreciably. After the injection of saline into normal persons, the discrepancy between arterial and venous blood is also slight (chart 2). They said that such an injection is not sufficient to mobilize the sugar, either in the tissues or in the liver.

On the other hand, the injection of saline into patients with hyperthyroidism presents a more interesting picture (chart 2). Here there is a definite dissociation between the arterial and the venous sugar. The arterial sugar rises higher than the venous sugar, which rises but little or may even be decreased. Such an injection causes shock to the liver, to which it answers by releasing its labile glycogen into the circulation. That this is in reality the liver sugar and not the tissue sugar is shown by the fact that the arterial blood sugar rises, whereas the venous sugar is not changed. There is thus a certain surplus in the arterial blood which is caught by the tissues and does not reach the venous blood. It is a well known fact that dextrose itself is the best stimulant for the utilization of dextrose by the tissues. Charvát's former work[10] showed that the burning of dextrose in the tissues of patients with hyperthyroidism is very active.

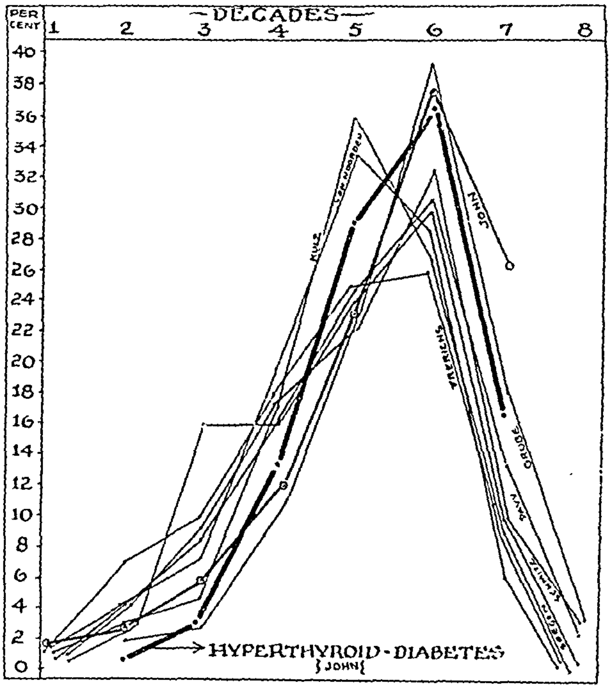


Chart 1.—The incidence of diabetes in various decades according to eight authors.

In the case of diabetic patients the picture is somewhat changed. In such a case the arterial sugar does not rise as markedly as is the case in hyperthyroidism and the curve often approaches that of normal persons. The venous sugar, on the other hand, is higher than the arterial sugar (chart 2). According to Gjurič's view, in cases of severe diabetes the tissue rather than the liver binds the sugar in a labile manner and releases it easily into the venous blood, which consequently is higher than the arterial sugar. In this manner the glycoregulatory disturbance of the patient with hyperthyroidism differs markedly from that in diabetes.

That the liver is not the chief factor in the production of hyperglycemia in hyperthyroidism is suggested by the following points:

1. The incidence of hyperglycemia in hyperthyroidism is too low.

---

[7] Simonds, J. P., and Brandes, W. W.: The Effect of Experimental Hyperthyroidism and of Inanition on the Heart, Liver and Kidneys, Arch. Path. **9**: 445-460 (Feb.) 1930.

[8] Asher, L.: The Function of Thyroid and Its Relation to Other Organs, Med. Klin. **27**: 757-760 (May 22) 1931.

[9] Charvát and Gjurič: The Question of Liver and Tissue Glyco-Regulation, Rozpr. II třídy české Akad., 1926, no. 26, p. 36.

[10] Charvát, J.: Metabolic Reflexes, Časop. lék. česk. **67**: 533-537, 1928.

2. The incidence of hyperglycemia in hyperthyroidism is irregular; severe cases usually show no hyperglycemia; mild cases may show pronounced hyperglycemia. If the liver were the primary factor, the degree of hyperglycemia would be proportionate to the severity of the hyperthyroidism.

3. In general, the renal threshold in patients with hyperthyroidism is low,[4] but the excretion of sugar bears no relation to the severity of the hyperthyroidism. If the storage function of the liver were at fault, glycosuria would automatically disappear after thyroidectomy, but this does not happen. In 35.3 per cent of the 166 cases reported here, the patients have to continue to take insulin, for even though the condition of the liver has improved, the pancreas still does not function sufficiently.

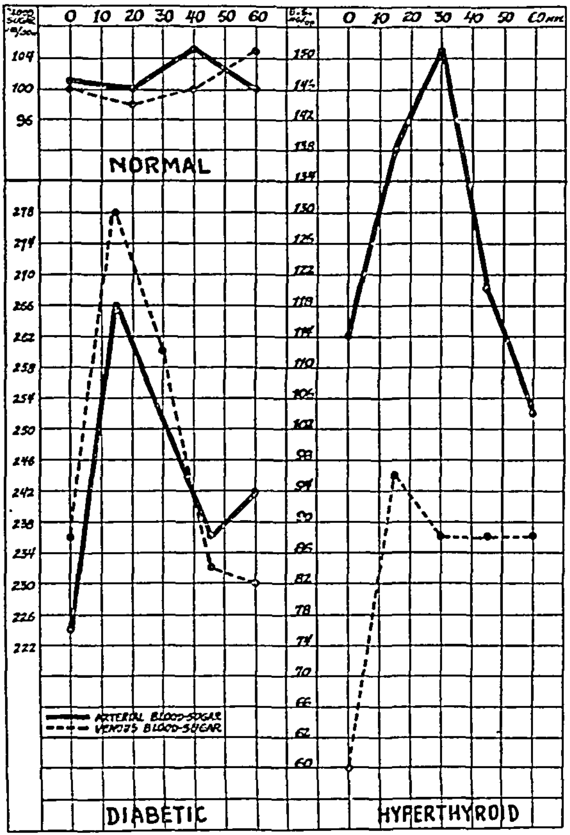


Chart 2.—Curves after the injection of 1 cc. of physiologic solution of sodium chloride per kilogram of body weight (After Charvat and Gjurić)

Ketone Bodies.—Thyrotoxic persons who are given a carbohydrate-free diet for two days show a marked increase of ketone bodies in the blood. In the normal person the fasting value of ketone bodies never exceeds 3.5 mg. per hundred cubic centimeters of aceto-acetic acid and 5.5 mg. per hundred cubic centimeters of beta-oxybutyric acid. In the thyrotoxic patient the ketone bodies rise as high as 16 mg. per hundred cubic centimeters of aceto-acetic acid and 18 mg. per hundred cubic centimeters of beta-oxybutyric acid. The patient with hyperthyroidism has a lowered glycogen reserve available for metabolism.

Levulose.—Strauss[11] first introduced the determination of alimentary levulosuria as a method for testing the liver function. Isaac and Adler[12] showed experimentally that of all the organs and cells of warm-blooded animals only the liver is capable of transforming levulose into dextrose. According to Isaac, the alimentary levulosuria is dependent on the fact that the part of the levulose which is not converted into glycogen or is not burned, in case of functional inability of the liver to convert levulose into dextrose, passes as levulose into the blood and is excreted as urine.

Kugelmann[13] offered the following conclusion: "We can now say with certainty that the thyrotoxic liver not only suffers severe injury in its glycogen depots but has also lost the capacity to change large amounts of levulose into dextrose and to utilize them later." (See chart 3, which represents Kugelmann's experiments along this line.)

Insulin.—Ten units of insulin given intravenously to man causes a rise of blood sugar of from 15 to 20 mg. per hundred cubic centimeters of blood in the first ten minutes, after which it falls. Bürger[14] demonstrated that this primary rise of blood sugar is dependent on the glycogen function of the liver. In none of the cases of exophthalmic goiter studied by the Bürger method by Kugelmann was this initial hyperglycemia seen. This is a further proof of poverty in glycogen in the hyperthyrotic liver.

Rathery, Kourilsky and Laurent[15] have shown that the blood sugar in depancreatized, starved, and starved and phlorhizinized dogs is distributed in the same proportions during the maximum effect of insulin as in normal animals. The discharge of glycogen from the liver is not influenced by its glycogen content. In dogs under similar experimental conditions, the hyperglycemia immediately following the administration of insulin upsets irregularly the relationship between the blood sugar in different vascular areas.

It would seem that with a little help from insulin the liver gradually resumes its capacity to bind more dextrose and keep a more even blood sugar level. Were it the state of hyperthyroidism alone which brings about the functional change that manifests itself in hyperglycemia, then one would expect the degree of hyperglycemia to bear a direct relation to the severity of the hyperthyroidism, and the incidence of hyperglycemia in cases of hyperthyroidism would be greater than it is. This is not so, however, for some of the most severe derangements of carbohydrate metabolism are found in some of the mildest cases of hyperthyroidism, and many of the most severe and even toxic states of hyperthyroidism show no disturbance of carbohydrate metabolism. Insulin brings about improvement in all cases by its direct action, by its protein-sparing action, through its influence on the storage of glycogen, on the diminution of the ketone bodies, or as the result of all four of these. The fact that disturbed carbohydrate metabolism rights itself in only the mild cases suggests that the protein-sparing function may play a rôle in the carbohydrate metabolism.

As for the clinical effect of insulin on hyperthyroidism, one may reason that it perhaps improves the patient's general metabolic condition, giving him a better chance to store glycogen in the liver and thus to combat acidosis; to store glycogen in the heart muscle and thus to give it a better chance to do its work; to spare protein by the increased oxidation of dextrose, and to store glycogen in the muscles and thus eliminate the instability of the organism in general. There is perhaps nothing specific about the action of insulin.

---

[11] Strauss, J.: Untersuchungen über alimentäre spontane und diabetische Glykosurien, Ztschr. f. klin. Med. **39:** 202, 1900.

[12] Isaac, W., and Adler, E.: Clinical Value of Liver Function Tests, Illinois M. J. **52:** 490-493, 1927.

[13] Kugelmann, B.: Disturbances in the Carbohydrate Metabolism in Morbus Basedowii, Klin. Wchnschr. **9:** 1533-1534 (Aug. 16) 1930.

[14] Bürger, M.: The Clinical Significance of the Hyperglycemic Effect Principle in Pancreas, Klin. Wchnschr. **10:** 351-354 (Feb. 21) 1931.

[15] Rathery, F.; Kourilsky, R., and Laurent, Y.: Hyperglycemia Following Insulin in Dogs Under Different Conditions, Compt. rend. Soc. de biol. **103:** 864-881 (March 21) 1930.

It is a good preoperative measure to give a patient 250 cc. of 10 per cent dextrose made up in saline solution intravenously, together with from 10 to 20 units of insulin, depending on the patient's condition. When the dextrose is buffered with insulin, hyperglycemia does not result even in diabetic cases, as I have shown in my observations on the intravenous administration of dextrose in cases of diabetes and in cases of acidosis as well as in ordinary surgical cases.[16] Such a procedure, therefore, is both logical and helpful, both before and after operation, for the first three days following the operation is the critical period for the patient and a little prevention goes far.

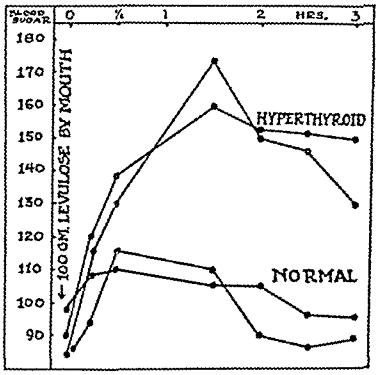


Chart 3.—Blood sugar curves of the administration of 100 Gm. of levulose. (After Kugelmann.)

Postoperative Acidosis.—Acidosis is a well recognized complication of the postoperative course after thyroidectomy. The pulse rate in such cases is high, and the patient can become semicomatose or stuporous immediately after operation. Is the acidosis in these cases of the same type as diabetic acidosis? Diabetic acidosis is due to the inability of the organism to burn dextrose, this in turn producing an incomplete combustion of fats with the resultant accumulation of ketone bodies in the blood stream (acetone, diacetic acid, beta-oxybutyric acid) and consequent acidosis. In uncomplicated hyperthyroidism, however, there is no such inability to burn dextrose, but there are rather an inability to store glycogen and a general increase of the metabolic process, so that all the available carbohydrate, including the glycogen reserve of the liver and muscles, is often utilized with resultant hypoglycemia. Holman[17] cited a case of hyperthyroidism in which the basal metabolic rate was plus 29 and plus 35 per cent, on two occasions. After thyroidectomy the pulse rate rose to between 180 and 250 immediately after operation, this very high rate lasting for sixty hours. Twenty-four hours after the operation the patient was in a semicomatose condition, and her blood sugar at that time was found to be only 48 mg. per hundred cubic centimeters. Dextrose solution, 20 per cent, was administered, and immediately the patient became conscious. Six hours later the patient again went into a deep stupor. She was again given dextrose, and again immediately became conscious. It is clear that in this case the stupor was due to hypoglycemia, a condition similar to the hypoglycemia of an insulin reaction. This is a condition that should be borne in mind. Blood sugar studies during the postoperative period are often of great value as they tell the needs of the patient at that time.

Basal Metabolism.—The relationship of the basal metabolic rate to the dextrose tolerance in a series of cases of thyroid disease is shown in table 10. It will be noted that in 60.6 per cent of the cases analyzed the dextrose tolerance curve was diabetic or prediabetic in type, while the basal metabolic rates ranged from minus 3 to plus 90 per cent. The case in which the metabolism was minus 3, however, was one of simple goiter and not one of hyperthyroidism. In 39.4 per cent of the cases the dextrose tolerance curve was normal in type, and the basal metabolic rate in these cases varied from minus 3 to plus 80 per cent. On the basis of this study it seems evident that the height of the basal rate bears no relation to the carbohydrate metabolism. The mild derangements of the carbohydrate tolerance that have been observed in this series of cases may be but functional disturbances. They may disappear only in part when hyperthyroidism is eliminated either by operation or by other treatment, thus showing that there is something other than the hyperthyroidism that is playing a part.

TABLE 10.—*Relation of Basal Metabolic Rate to Dextrose Tolerance Tests in 66 Cases of Thyroid Disease (John)*

	Normal Basal Metabolic Rate	Increased Basal Rate, Percentage									Total	Percentage
		10	20	30	40	50	60	70	80	90		
Number of cases	3	11	8	11	10	10	4	4	4	1	66	....
Diabetic	2	5	3	7	5	8	3	4	2	1	40	60.6
Normal	1	6	5	4	5	2	1	0	2	0	26	39.4

COMMENT

I think that the explanation of the disturbed carbohydrate metabolism associated with hyperthyroidism is not found in the state of hyperthyroidism per se, but that it is due rather to some other factor which I believe is a "diabetic anlage" that was present in the patient before the hyperthyroidism developed; infection or obesity would have brought about the same disturbance. Thus Naunyn,[18] in 1917, made the following statement: "I consider it justifiable to draw the conclusion that the thyroid causes glycosuria only where there exists a predisposition (anlage) to diabetes."

The following statement has been made by von Noorden:[19] "Pure hyperthyroidism in the presence of a fully normal chromaffin system and a normal pancreas will very seldom produce an alimentary and spontaneous transitory glycosuria."

It is possible that in hyperthyroidism, in which one is dealing with such an unstable nervous system, the nervous regulatory mechanism may also enter into the picture. But even so, the same problem is presented. Why is it that hyperglycemia occurs in some of the mildest cases of hyperthyroidism and is not present in many of the most severe cases?

Again one may raise the question whether in hyperthyroidism one may be dealing also with hypersuprarenalism, a condition that is known to produce hyperglycemia. In some of the mild cases in which the hyperglycemia disappears after thyroidectomy, the hyperglycemia might well be due to this cause. However, were the hyperglycemia due primarily to hypersuprarenalism, one would find a much higher incidence of hyperglycemia than is found and this again would be relative to the severity of hyperthyroidism, which is not the case.

---

[16] John, H. J.: The Use of Intravenous Glucose in Diabetic Patients, Surg., Gynec. & Obst. **50**: 769-773 (April) 1930.

[17] Holman, E. F.: Hypoglycemia in Exophthalmic Goiter, Bull. Johns Hopkins Hosp. **34**: 69-70 (Feb.) 1923.

[18] Naunyn, Bernhard: Der Diabetes mellitus, Vienna, A. Hölder, 1906, p. 99.

[19] von Noorden, C. H.: Zuckerkrankheit und ihre Behandlung, ed. 7, Berlin, A. Hirschwald, 1917, p. 41.

The question that is unsettled today is whether any of the factors mentioned could induce diabetes when there is no "diabetic anlage" to start with. I think not, but it is not known at present, as the background on which to base a proper interpretation of the facts that confront one and with which one has to deal is lacking.

The incidence of diabetes in hyperthyroidism is 2.1 per cent. The incidence of diabetes at large is given as 1 per cent. There is thus a 100 per cent increase of diabetes in cases of hyperthyroidism. I am inclined to think that a big factor here is the question of overeating, which is automatically brought about by the increased metabolism demanding more calories, and as the patient starts losing weight he automatically tries to compensate for this by eating more. This throws a great load on the insulogenic apparatus, which, if normal and with a good reserve, stands it well; if the reserve is small, it easily becomes exhausted and diabetes results. The condition is similar to obesity (overeating), in which, too, the incidence of diabetes is high, and the two are analogous pictures, their end-result being the same, though in one the patient is thin and in the other fat. Also the incidence of diabetes in hyperthyroidism is high from the fifth decade on, when one has to consider the problem of arteriosclerosis and endarteritis, which no doubt are contributory factors to functional changes in the insulogenic apparatus.

The medical problem involved in mild cases of disturbed carbohydrate metabolism is to protect persons with a decreased carbohydrate tolerance, rather than to let them drift along, unprotected, toward diabetes. They should be under surveillance until the physician has satisfied himself that stability has been established. In most of these cases the glycosuria disappears after thyroidectomy and the carbohydrate tolerance is restored to normal; in others, this does not happen. It is important, therefore, to make postoperative examinations in order to determine whether or not the carbohydrate metabolism has been restored to normal, and when this has not happened to institute such measures as are indicated. It is much easier to keep a diabetic patient in the mild stage of diabetes on a mild dietary routine (for that is all that is necessary in most mild cases) than to treat him successfully after a severe stage of diabetes has developed.

SUMMARY

1. No dextrose tolerance curve is specific for hyperthyroidism. That is, a definite diabetic type of curve may be present in a mild case of hyperthyroidism and a normal curve may be present in a very severe case of hyperthyroidism.

2. A single blood sugar estimation, when such a patient is first seen, is no criterion in the evaluation or even a diagnosis of diabetes in such a patient. This serves merely as a lead which should be followed up further and the true state of the patient determined. Even a high blood sugar may be just an incidental finding that clears up quickly, and another much lower blood sugar may persist as a definite diabetic condition.

3. The diagnosis of diabetes in cases of hyperthyroidism can be made only when such a patient has been studied over a sufficiently long time to determine a persistence of the defective carbohydrate metabolism. Without such a time element, many faulty diagnoses of diabetes are bound to occur.

4. Thyroidectomy lowers the total metabolism and in consequence improves the carbohydrate tolerance. In cases in which little or no improvement follows thyroidectomy this is due to the fact that lack of proper diabetic treatment or insufficient treatment has followed the operation, or else that intercurrent infections have produced further damage to the pancreas.

5. If diabetes develops after thyroidectomy, it is due either to other extraneous factors such as produce diabetes in other cases or to the fact that an insufficient amount of thyroid tissue has been removed and an active stage of hyperthyroidism persists. In the latter case, when more of the gland is removed, the diabetes is improved.

6. Hyperthyroidism plays a fundamental etiologic rôle in the disturbances of endocrine equilibrium in cases with a diabetic anlage in which diabetes can be precipitated. The factor here may be the heavy ingestion of food which accompanies active hyperthyroidism, thus placing a heavy load on the insulogenic function.

7. Glycosuria and hyperglycemia (either fasting or more often two and one-half hours after a meal) are not uncommonly present in hyperthyroidism. When found they should not be disregarded, but their significance and their relationship to the carbohydrate metabolism should be determined by appropriate tests.

8. The presence of hyperglycemia two and one-half or more hours after a meal, if it persists, is usually an expression of an insufficient insulogenic function.

9. The intervention of the menopause in a case of hyperthyroidism may cause hypertrophy of the islands of Langerhans with the resultant cure of a coincident diabetes. This probably, however, is a rare occurrence, for but few cases are reported in the literature (Rohdenburg [21]).

10. The glycogen depletion of the liver in hyperthyroidism increases the tendency to acidosis and makes a mild case of diabetes temporarily appear as a severe case. This factor is aggravated in cases in which diabetes is present. The ingestion or the intravenous administration of dextrose before or after operation, with or without insulin, according to the indication in the individual case, would seem to be a logical procedure. The factors that influence the glycogen depletion are probably the following:

(*a*) Toxic influences which directly affect the parenchyma of the liver cells.

(*b*) A high metabolic rate which causes increased consumption of carbohydrate and depletes the insulogenic stores, with resultant depletion of the glycogen store in the liver. Such a depletion is also shown in uncomplicated cases of hyperthyroidism which do not show a high blood sugar.

11. Hypersuprarenalism may also play a part in the production of hyperglycemia.

12. Patients with hyperthyroidism in whom a frank diabetic condition of severe type is not present, but

---

[21] Rohdenburg, G. L.: Spontaneous Disappearance of Diabetes, Endocrinology 6: 519-522 (July) 1922.

merely a mild degree of disturbance of the carbohydrate metabolism, may have but "functional" diabetes or again they may have cases of early diabetes. If appropriate treatment is not given, a frank diabetic state may develop.

13. The administration of thyroid preparations is not without danger. It may precipitate hyperthyroidism, and may even produce diabetes.

14. In my series of 100 dextrose tolerance tests in 82 cases of hyperthyroidism and 10 cases of colloid goiter, fasting glycosuria was present in 19 cases and absent in 81 cases. Sixty-six per cent of the curves indicate an impaired tolerance.

15. From the observations of these patients it would appear that the renal permeability is decreased in the active stage of hyperthyroidism. The renal threshold for dextrose was below 120 mg. per hundred cubic centimeters of blood in 35.6 per cent of the patients studied. The average renal threshold in cases of hyperthyroidism was 147 mg. per hundred cubic centimeters of blood.

OLFACTORY DISTURBANCES

ERNEST M. SEYDELL, M.D.
WICHITA, KAN.

In spite of the tremendous advance made in almost every branch of otolaryngology, the knowledge of olfaction remains, with few exceptions, the same as it was thirty years ago. There are many reasons for this, one of the most important being that it is possible to investigate this sense only from a subjective standpoint. Olfaction being regarded as a nonimportant sense, few rhinologists are sufficiently interested to publish case reports and interesting observations and to follow these with postmortem examinations. Until this is done, the true story of olfaction will never be written.

There is no absolute norm in olfaction, as it may be determined either in different persons or in the same person at different times. There is a constant physiologic variation in the acuity of the sense of smell as well as a great variation in the sense feeling produced by an odor in different persons at the same time, or in the same person at different times. In addition to these physiologic variations, there are a number of conditions which vary sufficiently from the normal to be termed pathologic, and it is these that I wish to discuss at this time.

The Specht classification of respiratory disturbances is:

1. Respiratory disturbances
    - *A.* Quantitative disturbances
        1. Hyposmia
        2. Anosmia
    - *B.* Qualitative disturbances
        1. Cacosmia
2. Essential disturbances
    - *A.* Quantitative disturbances
        1. Anosmia
        2. Hyposmia
        3. Hyperosmia
    - *B.* Qualitative disturbances
        1. Parosmia
3. So called functional disturbances
    - Hallucinations

The Specht classification has the advantage of giving a good perspective of the subject, but would be difficult for listeners to follow. I have therefore adopted this simplified outline:

1. Quantitative disturbances
    - *A.* Respiratory
    - *B.* Essential
    - { Hyperosmia, Hyposmia, Anosmia }
2. Qualitative disturbances
    - *A.* Respiratory
    - *B.* Essential
    - { Cacosmia, Parosmia, Agnosias, Hallucinations }

It must be remembered that any classification of olfactory disturbances has only relative value since transitions and combinations are frequent. Even the border zone between the normal and pathologic is impossible to define in all cases.

QUANTITATIVE DISTURBANCES

Hyperosmia.—A person may be able to perceive certain odors in a much less concentrated form than other persons can, while for other odors his sense of smell may be normal or subnormal. It is not certain whether this is a congenital or an acquired condition. The congenital form is probably more frequent. A hyperosmia for all odors is a rare condition and is usually the result of the use of certain drugs, i. e., strychnine and cocaine. With the latter drug it is, at least in part, caused by the shrinking effect of the cocaine on the mucous membrane of the nose, the access to the olfactory area thus being facilitated. The late effect of cocaine is that of a severe olfactory depressant.

Ponzo[1] has shown that benzoyldimethylaminomethylpropanol hydrochloride also produces a hyperosmia even though it causes a swelling of the mucous membrane of the nose. Hyperosmia is also supposed to occur in pregnancy and in hysteria. Von Skramlik[2] and others have stated that this is not a true hyperosmia but is due to the neurotic condition of the patient.

Hyposmia.—In hyposmia, every degree of impaired olfactory function from the slightest defect to complete anosmia may be found. The temporary hyposmias which follow infectious diseases and nasal infections are of frequent occurrence. Not all patients recover completely. Their prognosis depends in part on the severity of the causative infection and is also influenced by the presence of such nasal complications as sinus infection. The pathology of this condition is unknown.

Anosmia.—Anosmia may be unilateral or bilateral. The condition may be temporary or permanent, partial or complete. One may differentiate between a respiratory and an essential anosmia. In the former type of anosmia, the respiratory cleft leading to the olfactory area is cut off either by pathologic conditions or by accidental injury. As a subdivision of the respiratory type may be mentioned the gustatory anosmia which is caused by an obstruction of the choana.

The essential anosmias are due either to a disease of the olfactory mucous membrane or to some intracranial pathologic condition or accident destroying the olfactory nerves or center. Anosmia may even be congenital. In this case, there is usually an absence of the olfactory nerves.

Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

[1] Ponzo, Mario: Ueber die Wirkung des Stovains auf die Organe des Geschmack, Arch. f. d. ges. Psychol. **14**: 385-436, *p. 427, 1909.*

[2] von Skramlik, Handbuch der Physiologie der niederen Sinne, Leipzig, Georg Thieme, 1926.

Respiratory Anosmia: Under this heading may be specified as an etiologic factor any condition that causes an obstruction of one or both nostrils, i. e., nasal foreign bodies, rhinoliths, crusts, new growths, benign or malignant, deflection of the septum, enlarged turbinates or any other condition that prevents the inspiratory air current from coming in contact with the olfactory areas.

It has been noticed that destructive lesions of the ala nasi, when no involvement of the olfactory mucous membrane has taken place, are usually accompanied by some degree of anosmia. In these cases, the inspired air is not directed to the olfactory region. In a similar way, anosmia may occur following facial paralysis and collapsed alae nasi. In the acute and chronic sinus infections, there is frequently a combination of the respiratory and the essential types.

It is possible that an atrophy of disuse may develop in long-standing occlusion of the nasal passages, but this is by no means the rule.

Essential Anosmia, Type 1: It is probably futile to divide the essential anosmias into those which result from some lesion of the olfactory nerves and into those of central origin, because it is impossible to localize the lesion causing the olfactory disturbance except in those cases in which an involvement of other intracranial structures helps one to localize the site of the lesion. Nevertheless, one must hold to this classification for theoretical reasons.

If one accepts the theory that smell is the result of osmotic processes, it becomes self-evident that the slightest change in the chemistry of the cell plasma or in the cell walls must influence this process. It is therefore easily understood that an anosmia may result from fevers, any change in the amount of nasal secretion, extremes of temperature, dust, etc. In most of these conditions, the anosmia is temporary, but when an atrophy of the mucous membrane of the nose takes place, as in ozena, atrophic rhinitis or syphilis, it often becomes permanent.

Influenza is one of the most common etiologic factors, especially when it is associated with sinus infection. In these cases, the anosmia may be of a temporary nature or may become permanent; in other cases there is a partial recovery, with some or many of the smell qualities being lost.

In people with vitiligo and in albinos, olfactory disturbances have been repeatedly noticed. They were formerly supposed to be due to a lack of pigment in the olfactory mucous membrane; more recently, however, Schwartz[3] in investigating this question found a normal amount of olfactory pigment in albino squirrels, guinea-pigs, rats and mice.

Anosmia also may result from the toxic action of certain drugs, i. e., vapors of osmic acid, sulphuric acid, fluoric acid, sulphur, fumes arising from the manufacture of rubber, alcohol, tobacco, chloroform, ether, morphine, cocaine, phenol, etc. The deleterious effect of these chemicals may be due to their local action on the olfactory mucous membrane or to their toxic action after absorption into the blood stream. It is a well known fact that the application of cocaine to the olfactory area produces at first a hyperosmia due to the shrinking of the mucous membrane of the nose, thereby making the olfactory area more accessible. Later, an anosmia develops, the duration of which coincides in a general way with the time of anesthesia of the mucous membrane. Prolonged use of cocaine causes a degeneration of the mucous membrane with resulting permanent anosmia.

Fatigue Anosmia: Fatigue anosmia probably is usually of peripheral origin. It is characterized by the loss of certain smell qualities and usually is due to the exposure of the olfactory apparatus either to intense or to prolonged stimulation. Whether this fatigue is of peripheral or central origin is not known. Fatigue anosmia may be either temporary or permanent.

Traumatic Anosmia: Traumatic disturbances of smell may arise from direct injuries to the olfactory region of the nose or may result from injury to other portions of the head in which the olfactory nerve or bulb is injured indirectly. The most common causes are skull fractures in which the cribriform plate is involved. Fractures of the root of the nose are also prone to injure the olfactory apparatus. Anosmia has followed a submucous resection of the septum in which the perpendicular plate of the ethmoid was destroyed.

Congenital Anosmia: Congenital anosmia is a rare condition. Zwaardemaker stated that it is usually found in persons who have a deformity of the skull, with an absence of the lamina cribrosa. These patients frequently have other abnormalities, such as cleft palate and malformations of the septum. It is possible that many of these cases may be overlooked since it is impossible to make accurate olfactometric examinations in children.

Senile Anosmia: It has been shown that in the aged the sense of smell gradually diminishes, but complete anosmia is rare. This senile olfactory disturbance is frequently accompanied by parosmia.

Essential Anosmia, Type 2 (Intracranial): Here one must consider all of those diseases and new growths that interfere with the olfactory tract and those which involve the olfactory centers. These structures may also suffer from increased intracranial pressure from a distant source, especially that secondary to growths or abscesses in the temporal lobes, and also from neoplasms, etc., in the frontal and occipital lobes and in the pituitary body. New growths, as well as syphilis, tuberculosis and meningitis, if they occur along the floor of the frontal fossa, are especially prone to disturb the olfactory apparatus. Even hemorrhages in this region have caused olfactory disturbances. Anosmia may also follow softening of the brain and has been reported in tabes, dementia paralytica, paralysis agitans, myelitis, polyneuritis, myatonia congenita, syringomyelia, hydrocephalus, diseases of the middle cerebral artery, epilepsy, insanity and commotio cerebri.

Diagnosis of Anosmia: Owing to the apparent difficulties met with in making olfactometric examinations, few rhinologists have given serious consideration to olfactory disturbances. A fairly accurate examination of the sense of smell can be made even without special apparatus. Proetz[4] has devised a method that is both simple and accurate. The method of Bornstein[5] has an added advantage in that it includes the testing of the sense of smell, nasal taste, taste and the nasal tactile sense.

Bornstein has advocated that a complete test of these sensations should be made in each case: first, because the laity frequently confuse the sense of olfaction with that of taste (glossopharyngeal and sensory facial) and also that of nasal tactile sense (trigeminus) with that of olfaction; second, because the findings are of great value in making a differential diagnosis between pathologic and functional conditions. The reason for the complete examination will again be referred to under differential diagnosis.

---

[3] Schwartz, in von Heymann: Handbuch der Laryngologie und Rhinologie, Vienna, Alfred Hölder, vol. 3, p. 673.

[4] Proetz: A System of Exact Olfactometry, Ann. Otol., Rhin. & Laryng. **33**: 746-764, 1924-1925.

[5] Bornstein, quoted by Laemmle: Ueber Geruchsstörungen und ihre klinische Bedeutung, Arch. f. Ohrens-, Nasen- u. Kehlkopfh. **130**: 22-42, 1931.

Bornstein's (Geruchsleiter) Clinical Olfactometric Examination.—The substances used in the examination are so selected that they range from those having a very weak olfactory potency and gradually increase to a high potency. Bornstein has also taken into consideration the fact that tactile and taste components play an important rôle in the recognition of odors. His testing odors are selected from pure smell substances.

1. Wax
2. Stearin
3. Soap
4. Rosewater
5. Heliotrope
6. Bitter almond water
7. Turpentine
8. Spirit of camphor
9. Oil of lavender
10. Amyl acetate
11. Rectified oil of birch tar, N. F.
12. Anise oil
13. Sulphuric acid

Menthol (cool) and ammonia (prickling) are used to test the tactile components. The taste components are tested with chloroform (sweet) and pyridine (bitter). Bornstein uses 20 cc. glass stoppered bottles as containers for these smell substances. In testing a patient he uses the weakest solution first, each nostril being tested separately with the eyes closed. He then tests the sense of taste, using cane sugar solutions of 4, 10 and 40 per cent, a sodium chloride solution of 2, 5 and 15 per cent, a 1, 5 and 10 per cent citric acid solution and a quinine solution of 0.075 and 1 per cent.

In testing a patient's sense of smell, one must take into consideration that the sense of smell varies in different persons and in the same person at different times. This is due to a number of physical and biologic factors, i. e., the dampness of the atmosphere and the presence or absence of infection of the nasal mucous membrane.

The concentration of an odor naturally must be greater to be recognized than merely to be detected. Also, it is easier to recognize a known odor.

Having detected the presence of a hyposmia or anosmia through an olfactometric examination, it next behooves one to attempt to determine the causative factors. This may, or may not, be a difficult problem. A complete obstruction to both nares would materially point toward a respiratory disturbance. In the past, in many instances, it was impossible to prove this. The intravenous or hematogenous olfactory test of Bednar and Langfelder[6] has given a means of differentiating these two conditions. If a patient fails to perceive an odor after an intravenous injection of an odorous substance, a diagnosis of essential or psychic anosmia must be made. It was formerly thought that a psychic olfactory disturbance existed in patients in whom only a few smell qualities were missing. It is now known that this condition exists frequently in nonpsychic persons, i. e., in patients who formerly had a complete anosmia and in whom a gradual improvement of the sense of smell is taking place.

In patients with a neurosis or psychosis the results of several olfactometric examinations may vary without reason. One must observe the patient closely while making the olfactometric examination. Frequently some facial expression will reveal that he has perceived an evil smelling substance. Ammonia or menthol stimulates the trifacial, which is, of course, not involved in an anosmia. If he denies these sensations, one must be suspicious. If the patient is sufficiently intelligent to realize that these sensations are of touch, one cocainizes the nose. If he is still able to differentiate the true smell substances from those producing tactile sensations, there must be some sense of olfaction left. Every type of olfactory disturbance may be simulated in neurotic persons. Usually there are other nervous manifestations which assist in the diagnosis, i. e., hemiparesis or hemianesthesia. Another important factor in the diagnosis of a functional lesion of the olfactory apparatus is the result obtained in the Bornstein test. In functional cases there is frequently an anosmia with a loss of tactile sensation in the nose, of nasal taste and of gustatory taste sensation. A lesion sufficient to cause these symptoms would include the involvement of the olfactory, trigeminus and glossopharyngeal nerves and could easily be determined clinically. It is always necessary to make several olfactometric examinations in patients suspected of being neurotic or in cases of traumatic anosmia. Finally, the psychogalvanic reflex may be of value in determining the presence of the sense of smell in these persons.

It is impossible to differentiate the peripheral and central essential anosmias except in those cases of central anosmia in which the causative lesion produces other symptoms referable to the destruction of other cerebral structures. Because of bilateral innervation, no certainty exists as to the location of the lesion, even in unilateral anosmia. It is known that in unilateral lesions of the uncus when a hyposmia or anosmia is present, rapid compensation or equalization takes place.

The reason for this paucity of knowledge is the almost total lack of accurate postmortem examinations in cases in which olfactory disturbances have been discovered during life. Every rhinologist should attempt to procure a thorough postmortem examination in his olfactory cases. This work should be carried out only by someone especially versed in olfactory anatomy.

Disturbances of smell help to localize the site of the lesion following injuries to the skull. Frequently, olfactory disturbances are the only symptoms noticed by patients who have a traumatic skull injury. Whereas most surgeons who come in contact with a large number of skull fractures give but little or no attention to the olfactory disturbances suffered by these patients, they could be of great service to rhinologists if they could be induced to investigate this phase of the subject.

Olfactory Disturbances from a Forensic Standpoint.—It is rather a difficult question to determine the financial loss sustained by a patient in whom the sense of smell has been destroyed. Little information on this subject exists either in textbooks or in books on forensic medicine. Many people employed as butchers, bakers, cooks, brewers, wine, coffee and tea tasters, gardeners and perfumer's chemists suffer a great loss and frequently are unable to pursue their vocations. In these people the loss sustained ranges from 5 to 40 per cent. Some authors state that it is almost impossible to estimate the disability in a given case. They recommend that after a competent rhinologist has decided that the olfactory sense has been destroyed, the amount of disability can best be estimated by a jury of men engaged in the same class of work as that of the injured person.

Anosmia and Its Effects on Taste Perceptions.—Crosland, Goodman and Hocket[7] after a very careful investigation have concluded that patients suffering with anosmia are not inferior to controls in naming foods placed in their mouths.

---

[6] Bednar and Langfelder: Ueber das intravenöse (hamatogene) Riechen, Monatschr. f. Ohrenh. 64: 1133-1139, 1930

[7] Crosland, Goodman and Hockett: Anosmia and Its Effects upon Taste Perceptions, J. Exper. Psychol. 9: 398-408, 1926.

Prognosis.—The prognosis of respiratory olfactory disturbances is good when the causative factor can be removed. In the essential anosmias of the peripheral type, especially those of toxic origin or those that follow influenza, some improvement may be expected, but complete restitution cannot be promised. Even the traumatic cases are not hopeless, as some patients recover at least a portion of their olfactory sensation.

Treatment.—In the respiratory and in the toxic essential anosmias, removal of the causative factor is the first indication. For the essential type some authors recommend quinine, strychnine and arsenic. Others recommend the use of a high frequency current of low intensity. One author recommends the use of radium, which he thinks acts as a direct stimulant to the nerve-endings.

QUALITATIVE DISTURBANCES

Cacosmia.—This condition was formerly erroneously called subjective cacosmia. It has been shown by investigators that it is only apparently subjective and that there is really an adequate stimulation in these cases, this being the causative factor, even though in some cases this causative factor cannot be found. The odor is always disagreeable, is due to the decomposition of tissue, such as pus cells, and is usually noticed by the patient on expiration. Its usual sources are tonsil plugs, carious teeth, sinus empyemas, gastric disturbances, obstipation, bronchiectasis and other pulmonary conditions and degenerating syphilitic ulcers in the respiratory tract. Specht [8] referred to a patient who experienced a bad odor which disappeared when an osteomyelitis of the forearm was drained. The causative factor may be difficult to find, owing to the many hidden recesses in the upper respiratory tract.

Parosmia.—Some authors classify as parosmia only those disturbances of smell in which there is a perversion in the perception of smell qualities. Many of the modern investigators of this condition add to the parosmias those cases in which there is a perversion of individual odors, the so-called stable hallucinations. The perverted odors have a strange and usually a disagreeable quality. Parosmia may be of peripheral or central origin and is caused by a lesion in the olfactory sense organ or in the olfactory perceptive nervous system. The presence or absence of a change in the feeling tone for an odor has no significance as far as parosmia is concerned. Parosmia is a condition of considerable importance and may rob a patient of many of the pleasures of life. In some persons it causes malnutrition; in fact, the entire psyche may become unbalanced. Food, clothing, friends and everything with which the patients come in contact may have a vile odor, making life almost unbearable.

Influenza, especially when associated with sinus infections, is the most common etiologic condition in the peripheral type. Parosmia has been caused by the local application of silver nitrate, alcohol and cocaine to the olfactory mucous membrane.

Cases of Peripheral Type: Mackenzie [9] reported the case of a physician to whom violets had the odor of phosphorus; Beyer,[10] a case following influenza in which the patient confused xylene with benzoin and to whom asphalt had a nauseating odor. Cloquet's [11] patient could not perceive vanillin, but was very fond of peruvian heliotrope, which has an odor similar to vanillin. Cloquet also referred to Grundell's case of a priest to whom all odors resembled cabbage or manure.

In the more modern literature, Rollette,[12] who developed a parosmia following the application of alcohol to his olfactory mucous membrane, described his own experiences. These should be read from the original paper. The most important contribution to the literature of parosmia is that of Hofmann.[13] Following an attack of influenza, Hofmann developed an anosmia, complicated by a parosmia. He described in minute detail the result of his experiences with this condition. At first, he could not perceive odors of any kind; gradually some odors became perceptible, after a time the latter were more easily perceived and finally he was able to smell them in their normal intensity. In the beginning these odors were not characteristic of anything that he had ever smelled, but had a woolly, alcoholic or repulsive odor. He stated that he lived in a world of unknown smells. Knowing in advance the name of an odor with which he was about to test himself seemed only to make him more aware how strange the odor he perceived really was. In parosmia, generally speaking, the normal impression of an odor returns in proportion to the increase in the intensity of the odor. All odors do not return at the same time or degree. Patients may never completely recover their sense of smell, or it may take months or years for them to regain it.

Cases of Central Parosmia: The following cases are examples of parosmias which developed subsequent to the use of certain drugs. After taking antipyrine, one patient noticed an odor of cinnamon. Santonin produced a burned odor which lasted for three days in another person; arsphenamine, an odor of roasting coffee in another. All of these were of a temporary nature.

The parosmias of pregnancy quite likely result from the toxemia of this condition. The parosmias that occur during the climacteric period are very likely of the same nature. Robertson [14] reported a case of parosmia which followed a traumatic iritis and choroiditis; he thought it due to an irritation of the olfactory tract.

Parosmia occurs in beginning tabes and in senile anosmia; here the lesion may be found in the olfactory bulb. It may also occur in diseases of the olfactory tract, the gyrus occipitotemporalis and the gyrus hippocampus. Several cases have been reported which followed injuries of the head. Cerebral hemorrhage is also a causative factor.

In a 50 year old patient with marked arteriosclerotic changes, all olfactory stimuli produced the odor of heliotrope.

Lockmann's patient [15] had perversions of smell which were caused by destruction of the olfactory tract by a carcinoma. Cullerier and Maignault[16] reported the case of a patient who complained of a constant bad odor, the causative factor being an ossification of the arachnoid membrane.

---

[8] Specht, in Denker and Kahler: Handbuch der Hals-Nasen-Ohrenheilkunde, Berlin, Julius Springer, 1929, vol. 5, p. 673.

[9] Mackenzie: Die Krankheiten des Halses und der Nase, Berlin, 1884, vol. 2, p. 424.

[10] Beyer: Beitrag zur Frage der Parosmie, Ztschr. f. Psychol. u. Physiol. d. Sinnesorg. **35:** 50-61, 1904.

[11] Cloquet, J. H.: Osphrésiologie, Weimar, 1824, p. 75.

[12] Rollette: Beitrag zur Physiologie des Geruchs, Arch. f. d. ges Physiol. **74:** 383-465, 1899.

[13] Hofmann: Zur Theorie des Geruchssins, Sitzungsb. d. Gesellsch. z. Beförd d. ges. Naturw. zu Marburg, 1918, no. 3. Ueber Geruchstörungen nach Katarrhen der Nasenhöhle, München. med. Wchnschr., 1918, pp. 1369-1370.

[14] Robertson: Boston M. & S. J., **89,** 1873.

[15] Lockmann: Zur Kasuistik der Geruchsanomalien, Ztschr. f. rat. Med., **12,** 1861.

Treatment.—The older books recommend either a stimulating tonic containing strychnine and arsenic, or the bromides or iodides. Sternberg[17] has successfully treated a number of patients suffering with the peripheral type of parosmia by intravenous injections of an odorous substance. Most of his patients were cured after one or more injections; in others the condition was improved.

Smell Agnosia.—A smell agnosia exists when a patient is able to perceive a given odor, but is unable to recognize it, even though it may be of the most common type and an odor with which at one time he was well acquainted. These persons who are unable to recognize certain odors usually state, "Yes, that is it," when told the name of the odor. Henschen[18] made a thorough study of this condition by making a complete investigation of the nineteen cases seen in his own practice, and also of those cases which had been reported in the literature. His conclusions were in accord with those of Ramon y Cajal and Bechterew, i. e., that agnosias resulted from lesions of the secondary smell centers. In one of Henschen's cases there was an abscess in the second and third temporal convolutions. In another case there was considerable destruction of the gyrus hippocampus. The uncus and portions of the cornu ammonis were not destroyed.

Hallucinations.—Hallucinations of smell are another form of olfactory disturbances. Whereas parosmia is caused by a lesion of the bulb or the olfactory perceptive system, hallucinations and agnosias are supposed to originate in the secondary olfactory centers and especially in the cornu ammonis. Like the parosmias, they are produced without objective stimulation. They are therefore frequently found as a symptom of tumor of the brain, in epilepsy and in the insane. The odorous hallucinations are usually unpleasant, resembling decaying proteins, something burning, or an apothecary shop. Those occurring as a result of the acute intoxications and in hysteria may be of a pleasant nature. Marcus[19] stated that until 1909 only four cases of epilepsy with hallucinations of smell in which complete postmortem examinations had been made were to be found in the literature. The pathologic changes in these cases had a common localization, the lesion being in the region of the cornu ammonis or the hippocampus region of the temporal lobe. Since 1909 many more have been added to this list. There are a number of cases reported in which the patients have suffered with epilepsy and in which extensive lesions of the cornu ammonis were found, but no hallucinations of smell occurred. On the other hand in all cases of epilepsy with smell aura, the cornu ammonis was found involved; whereas, in tumors elsewhere in the brain, no such hallucinations were observed. According to Jelliffe,[20] certain tumors lying on the orbital plate of the sphenoid and compressing the olfactory lobe have seemed to give rise to unilateral or bilateral hallucinations of smell. In certain psychogenic epilepsies the olfactory symbolisms are highly determined; what relationship these have, either as a cause or as a result, to the lesions of the cornu ammonis found in these epileptics has not been determined.

There is not always an objective disturbance of smell in these cases, even when a destructive lesion of the cornu ammonis exists. This is due to the fact that the cornu ammonis is an association center. The primary olfactory center is supposed to be located in the uncus. It is also true that a unilateral lesion of the uncus, or even of the uncus, gyrus hippocampus and cornu ammonis, may not produce a loss of the sense of smell, because of the bilateral innervation of the sense of olfaction. When a loss is present, compensation usually results. There have also been quite a number of hallucinations of smell reported following injury to the brain. Akutzinsky[21] reported a case of epilepsy with olfactory hallucinations associated with an objective disturbance of smell, in which on postmortem examination, a bullet was found in the anterior pole of the gyrus hippocampus and the turning point of the uncus. Hallucinations of smell are frequently observed in mental cases, in the hysterical, or even in persons who are under a severe psychic strain. Specht[8] reported the case of an excited woman who smelled compound solution of cresol on her sick child's breath. A woman in the same neighborhood also smelled the odor. The most minute postmortem examination failed to reveal any compound solution of cresol, the child having died of pneumonia.

Hallucinations of smell and taste are often observed in mental cases, and patients frequently refuse nourishment because of their presence.

A physician must always feel skeptical of patients complaining of hallucinations of smell. The possibility of the presence of any odors must be carefully excluded, especially if the patient has been confined in a hospital where odors may be carried by the hands, hair and clothing. It must be remembered that most of these patients are ill, many with mental disturbances, a condition which makes their observations uncertain. Something may call the attention of these people to the odor of their mouths or bodies, and smells may thus be perceived which were previously unnoticed.

Differential Diagnosis.—When hallucinations occur in mentally sound patients, it is sometimes practically impossible to determine whether one is dealing with an hallucination, a cacosmia, a parosmia, an illusion, a cosensation or synesthesia, or an eidetic image or smell memory. In cacosmia the odor is more or less constant and the causative factor can usually be found in the respiratory tract.

The parosmias are probably to be differentiated from the hallucinations in that the latter are due to irritations in the secondary association centers. The parosmias, in contradistinction, are due to a lesion in the perceptive portion of the olfactory system. Clinically, they can be differentiated only in that the hallucinations come periodically, whereas the parosmias are prolonged over a greater period.

Illusions.—It may be stated that an illusion of smell occurs when an objective stimulation is present which, however, does not produce a normal perception on account of an active psychic imagination producing a false perception. This perception is usually based on a previous experience.

---

16. Cullerier and Maignault, quoted by Henning: Der Geruch, Leipzig, 1924, p. 346.

17. Sternberg, H.: Monatschr. f. Ohrenh. **65**:171, 1931.

18. Henschen: Ueber die Geruchs- und Geschmachs Zentren, Monatschr. f. Psychiat. u. Neurol., **45**, 1919.

19. Marcus: Epilepsie und Geruchsaura, Ztschr. f. d. ges Neurol. u. Psychiat. **30**: 118, 1915.

20. Jelliffe and White: Diseases of the Nervous System, ed. 3, Philadelphia, Lea & Febiger.

21. Akutzinsky: Monatschr. f. Psychiat. u. Neurol. **57**: 321, 1925.

Carpenter[22] described a case in which a sexton distinctly smelled the odor of decaying flesh while exhuming a body, only to find the coffin empty. In a second case a chemist, after smelling denatured alcohol, again smelled the pyridine base odor with which it was denatured, when he was asked to smell a quantity of pure grain alcohol.

An illusion varies from an hallucination in that the odor perceived is not stable, and if careful inquiry is made, the basis for the illusion can usually be determined.

Synesthesia.—It is a well known fact that in some people a stimulation of one sense organ will produce a sensation from another organ; e. g., stimulation of the sense of hearing may bring about an odor. This may be illustrated by citing the case of a woman, who, on hearing a false note, noticed a bad odor. The sense of smell may also be associated in the same way, the odor of geraniums producing the visualization of a deep red color in one person; garlic, a deep green in another. These are always constant and in this they vary from the eidetic images. They vary from the hallucinations in that they are produced only by objective stimulation.

Jaensch[23] and others investigated the observations made by J. Müller, Goethe, Fechner, Urbantschitsch and others, and came to the conclusion that primitive man experienced not after-images but eidetic images, the difference being in the structure of the images. The structure of the eidetic image is an exact replica of the original, both in plastic form and color, the "I" being on the same plane as the image. These investigators also stated that children between the ages of 6 and 12 have no after-images. With abstract education, or training by the science of words, plus the influence of puberty, a cleavage of the primitive (Einheit's *Form*) results in a transformation of the eidetic images into after-images. This change occurs only in the higher senses. A few people retain the eidetic images even in the higher senses throughout life.

In olfaction and in the sense of taste, eidetic pictures remain and may come to some persons immediately after perceiving an odor. In other cases minutes, hours or even weeks may intervene between the time that the odor was perceived and the image experienced. It may also arise incidentally without apparent cause. The eidetic image may be experienced in conjunction with one or more of the senses, such as sound and vision.

A careful inquiry will usually allow one to differentiate eidetic images from hallucinations.

Ziem[24] pointed out that an incorrect diagnosis of hallucinations may end disastrously. He cited two cases in which patients had been committed to an asylum on account of olfactory hallucinations and had died in this institution. Postmortem examination showed that they both had had badly infected antrums, which were probably the cause of their odor perceptions.

A correct diagnosis of qualitative olfactory disturbances is also essential in that the cacosmias and peripheral parosmias are of a benign nature, whereas the central parosmias and hallucinations usually signify cerebral disease.

The entire subject is complicated, and the borderline between these different conditions overlaps and at times it becomes impossible to differentiate them.

SUMMARY

1. In patients with olfactory disturbances it is advisable to make tests of the acuity of the sense of smell, nasal taste, nasal tactile sense and the gustatory sense.

2. Careful olfactometric examinations followed, when possible, by accurate postmortem examinations will extend the knowledge of olfaction. The cooperation of surgeons who come in contact with numerous skull fractures should be sought to assist in this problem.

3. The intravenous injection of smell substances appear to be valuable in: (*a*) differentiation between the respiratory and the essential anosmias, and (*b*) the treatment of the peripheral parosmias.

4. Since the cacosmias and the peripheral parosmias are of a benign nature, it is essential that great care be taken in differentiating them from the central parosmias and hallucinations which point toward some serious cerebral disturbance.

ABSTRACT OF DISCUSSION

Dr. Claude L. La Rue, Shreveport, La.: Relatively few patients come to me primarily because of impaired or absent sense of smell. By far the greatest number have infectious diseases, sinusitis, chronic rhinitis or influenza, and seek relief from these conditions, mentioning incidentally the olfactory disturbance. Usually the sense of smell satisfactorily returns as they are cured of the infection. Some have nasal deformity following trauma, so that air cannot enter the respiratory clefts, while the smallest group comprises those with anosmia of central origin—intracranial inflammation, new growths, basal fractures. In these days of compensation insurance, one must not too quickly conclude that a trauma to the nose preceding impaired olfaction is necessarily its cause; neither must one take too seriously the patient who blames a previous nasal or sinus operation for his inability to smell, because usually the disease for which the operation was performed, not the operation itself, is the cause. From the standpoint of localizing intracranial pathologic changes, or even determining their presence, our present tests for olfactory dysfunction are not of great value, being vastly overshadowed by other more important means. From the rhinologist's standpoint, knowledge of the olfactory system and ability to diagnose its lesions at least does much toward restoring a considerable degree of satisfaction and pleasure to those having olfactory dysfunction. Better olfactometric examination on the part of the rhinologist, as advocated by the author, is certainly warranted.

Dr. George B. Collier, New Orleans: The olfactory region of the nasal cavity comprises the superior nasal concha and the corresponding part of the septum. The olfactory fibers arise by bipolar cells, form a plexus beneath the mucous membrane and ascend in grooves in the ethmoid bone, passing into the skull by way of the cribriform plate and entering the olfactory bulb, thence to the olfactory area in the brain. These areas, while not as easily localized as the eighth and optic nerve, have not been used as much in the past as they should be by industrial surgeons and others doing surgery of the head and making diagnosis of lesions. Nevertheless, with the better trained brain surgeons and the more scientific rhinologists working in cooperation and spurred on by such papers as Dr. Seydell's, there is no reason why this nerve tract should not be used more and greater importance attached to it, especially in localizing brain tumors and injuries. Gunshot wounds or other penetrating wounds that would sever the bulb would cause complete loss, and any abnormality preventing access of air to the olfactory area will decrease the sense of smell, as septal deflection, hypertrophy of the turbinates, common head *colds, and inflammatory diseases. In influenza and other spe-*

---

[22] Carpenter, W. B Principles of Mental Physiology, London, C. Kegan Paul & Co, 1881, p 158

[23] Jaensch. Ztschr. f. Psychol u Physiol d Sinnesorg., 1920-1923, pp. 84-92

[24] Ziem: Zur Lehre von der Anosmie Parosmie und Parageusie, Monatschr. f. Ohrenh. 38: 400-406, 1904.

cific diseases the anosmia may be partially due to a direct toxin. Accessory-sinus disease bears a definite relation to smell and quite often is an important symptom. The more one finds in the way of nasal obstruction, the better the chance for recovery. Attention to diseased sinuses gives improvement. In atrophic rhinitis with injury to the nerve endings, little can be expected. The toxic type, if not of too long duration, will improve if the cause is removed.

Dr. William D. Gill, San Antonio, Texas: In my experience, functional testing of the sense of smell has had its greatest field of usefulness in examination of patients with mental disorders, especially early dementia praecox, as such patients will often admit having an hallucination of smell when other types of hallucination are denied. I have seen the practical application of these tests in the examination of recruits for military service, and they are also of value in the examination of prospective employees in the industrial field, as they frequently protect against employees with incipient mental disorders and often forestall insurance claims in malingerers complaining of the loss of smell. The latter point is especially important in chemical industries. Another point that may be mentioned is that examination of a patient with a suspected brain lesions, such as tumor or abscess, is not complete until the sense of smell has been tested qualitatively. Lesions of the base of the brain in the frontal and prefrontal regions, and of the uncinate gyrus, are the locations in which lesions most frequently produce disturbance of smell. In cerebral localization other substantiating neurologic tests should be employed, such as estimation of the visual fields. Little information can be gained by testing the olfactory sense in acute brain injuries, the reason being that the critical condition of most of these patients precludes their cooperating with the examiner. Sharpe's book on brain injuries has nothing in the index regarding disorders of olfaction in acute brain injury. To the neuropsychiatrist functional testing of the sense of smell has its greatest practical application, but to the otolaryngologist such tests are equally important and demand just as serious consideration. It may be well to sound a warning note at this point against destructive nasal surgery, as many of the patients subjected to radical operation complain of loss of smell after such procedures. Profit can be gained by paying serious attention to the principles of ethmoidal surgery as outlined by Pratt of Minneapolis. Much of the joy of living is lost by patients who are deprived of the sense of smell by too radical intranasal surgery, as the impairment or loss of the sense of smell and sense of taste makes such patients quite unhappy.

Dr. Ernest M. Seydell, Wichita, Kan.: There can be no progress in olfaction until rhinologists make olfactometric examinations on patients suffering with olfactory disturbances and report those cases which present instructive factors.

Primary Lesion in Hepatic Cirrhosis.—I believe that the primary lesion in cirrhosis is one which depends on slow progression but frequent repetition. It consists, first, in degeneration or destruction of liver cells, followed by regeneration and replacement by new liver cells, but with some overgrowth of fibrous tissue in the areas which are destroyed. The essence of this view is the conception that the damage in the liver is one which is focal, but frequently repeated. Areas of liver cells die, and are replaced by new areas built up from surviving cells; these new areas are again destroyed, and again rebuilt, but increase of fibrous tissue gradually supervenes as the process of death and repair is repeatedly carried out. Finally, on this view, an entirely new liver parenchyma, containing perhaps not a trace of the old and original liver, is built up on a plan which has the appearance we describe as cirrhosis. Not only has the entire parenchyma been repeatedly destroyed and renewed, but, as is well known from the work of many pathologists, new bile ducts are made and joined up in functional relation with the new glandular cells. Even the blood vessels and their branches—both of the hepatic artery and of the portal vein—are involved and the whole circulatory plan in the liver is markedly altered.—McNee, J. W.: Croonian Lectures on Liver and Spleen: Their Clinical and Pathological Associations, *Brit. M. J.* **1**:1111 (June 18) 1932.

A CONTRIBUTION TO THE STUDY OF SO-CALLED LIVER DEATH

CARL BRYANT SCHUTZ, M.D.
FERDINAND C. HELWIG, M.D.
AND
HAROLD P. KUHN, M.D.
KANSAS CITY, MO.

So-called liver death has been the subject of considerable discussion in recent publications, and numerous observations have been made regarding the clinical course and possible etiology of these unfortunate disasters, which all too frequently follow surgical procedures on the gallbladder and bile tract.

In a recent study of several postoperative deaths in patients suffering from gallbladder disease and coincident hepatic damage of long standing, we[1] were struck by a peculiar and constant chain of symptoms and necropsy observations which suggested a pathogenesis for this rather obscure type of liver death.

The first case we[2] observed was one of traumatic pulpification of the liver in a boy, aged 16 years, who died eleven days after an accident. The most striking clinical manifestations were oliguria (which progressed to anuria) and uremia associated with hemorrhages from all mucous surfaces. The symptoms were accompanied by a marked retention of blood nitrogen. At necropsy the most striking finding, aside from the pulpified liver, was a high grade nephrosis. After considerable study of this case, we assumed that the nephrosis was produced by some toxic product elaborated by the pulpified liver which had some specific deleterious effect on the kidneys. Subsequently we observed four patients who died following cholecystectomy in whom the clinical course was similar to that of the patient who died following the liver trauma. In another instance we studied a patient who died in a state of coma with clinical manifestations closely paralleling those seen in the foregoing five cases. The latter patient was a woman, aged 39, who had a diffuse metastatic carcinoma of the liver secondary to a carcinoma of the breast (removed eleven weeks previously). Necropsy revealed marked degenerative lesions in both kidneys.

In none of these patients could any infection be demonstrated, and all showed marked changes in both the liver and the kidneys.

THE HEPATORENAL SYNDROME

The clinical and necropsy observations were unusually interesting and fairly constant. With the exception of the first and last case mentioned, all gave a history of long standing gallbladder disease. In all cases, careful preoperative blood and urine studies presented normal conditions. On about the fifth or the sixth postoperative day the patients developed a rise in temperature and pulse rate, accompanied by abdominal distention and a progressive oliguria with the appearance of albumin, casts and often red cells in the urine. With the increase in oliguria, the patients lapsed into delirium and then coma, the nitrogenous elements of the blood increased progressively and the urinary nitrogen became greatly diminished. Nausea and vomiting were

---

From the Departments of Pathology and Surgery, St. Luke's Hospital.

[1] Helwig, F. C., and Schutz, C. B.: A Liver Kidney Syndrome: Clinical, Pathologic and Experimental Studies, Surg., Gynec. & Obst., to be published.

[2] Helwig, F. C., and Orr, T. G.: Traumatic Necrosis of the Liver with Extensive Retention of Creatinine and High Grade Nephrosis, Arch. Surg. **24**: 136-144 (Jan.) 1932.

often severe, and mucous surface bleeding frequently became a prominent feature in the clinical picture. In the latter part of the illness, blood often in large amounts was found in the stools and the vomitus. The clinical picture then progressed to that of uremia with generalized low grade edema and almost total anuria. The blood nitrogenous elements continued to increase and the patients died in a state clinically resembling uremia.

The conditions found at necropsy were relatively uniform. Low grade generalized edema was almost always present and the operative wounds showed little or no healing. The gastro-intestinal tract contained blood in large amounts, which apparently originated from submucous hemorrhages. Not infrequently hemorrhages were found in the mucous membranes of the mouth, respiratory tract and kidney pelves. The liver and kidneys were always the seat of striking degenerative changes. In the former, either leukocytic infiltrations, necrosis and interstitial hemorrhages, or marked parenchymatous and fatty changes were present. The most advanced lesions were seen in the liver tissue about the gallbladder fossa in these operative cases. The kidneys always presented a marked nephrosis. Parenchymatous swelling and loss of normal markings were the outstanding gross observations, while, microscopically, tubular epithelial degeneration progressing to actual necrosis was almost constantly observed. Patchy focal hemorrhages and areas of leukocytic infiltration were the rule, while the glomerular changes were not noteworthy.

CLASSIFICATION

In a large series of so-called liver deaths recently analyzed by Heyd,[3] wherein the death could not be ascribed to the usual types of mortality, he has classified the deaths into three groups, as follows:

Group 1. "Hepatic exhaustion," which he thinks is due possibly to decreased chemical activity of the liver resulting in an alkalosis which causes death. The mechanism of this condition is still quite obscure.

Group 2. The jaundiced patient who has had a rather satisfactory postoperative course for a few days when a distinct change in the character of the bile drainage occurs; it becomes thin, watery and decreased in amount. The patient becomes delirious, lapses into coma, and dies. In these instances, Heyd thinks that the sudden release of the obstruction (the majority are common duct operations) may result in an acute secondary hyperemia of the liver with resultant failure of liver function.

Group 3. The nonjaundiced patient with pancreatitis and common duct disease who, following a drainage of the common duct, does well for twenty-four hours and then goes into a state of shock with cessation of urinary secretion. This is brought about, he thinks, as a result of overwhelming intoxication of pancreatic origin.

Unfortunately, no necropsy studies were recorded and very few substantial facts relating to the actual mechanism of these clinical manifestations are brought forward to account for them. Therefore, we wish either to amend certain phases of this classification or at least to contribute some additional data to the study of this distressing problem.

In our cases only two showed any evidence of jaundice, and in one of these it was very faint. In neither instance did we consider the jaundice of any importance in the causation of the kidney damage, as no obstructive lesions were present and the kidneys did not show the microscopic picture of bile nephrosis. The jaundiced patient presents a characteristic train of symptoms, which have been well summed up by Walters[4] and again by Heyd. This type of case is referred to in group 2 by Heyd in the foregoing discussion. In groups 1 and 3 in his series there was no jaundice and in group 3 he considered the condition due to pancreatitis resulting from common duct obstruction and he felt that some toxin was elaborated by the diseased pancreas which caused the clinical syndrome he has outlined. Therefore, we feel that group 1 of Heyd's series, which he ascribes to "hepatic exhaustion," would more nearly compare to the cases we have observed.

COMMENT

In all instances in which gallbladder disease was the reason for surgical intervention, we obtained a history of long standing cholecystitis and, at both the operation and the necropsy, liver damage of considerable duration was encountered. We feel that the deaths which ensued in these individuals were not the result of cessation of liver function since there was apparently no impairment in glycogenesis, as evidenced by blood sugar determinations, nor was there any evidence of failure to deamidize the amino-acids, since urea formation was unhampered and progressive increase in the nitrogenous products in the blood was found in every case. In all of our patients, the stools contained bile, and no other evidence of any lack of hepatic function was found. Unfortunately, we did not carry out any tests for impairment of fibrogen production.

MECHANISM

The mechanism responsible for the kidney damage is, of course, obscure. All our patients died in a state clinically resembling uremia and in not a single instance was there any evidence of previous kidney damage. Therefore, we concluded that the damage to the kidney must have been brought about by some toxin elaborated by the diseased liver which acted more or less specifically on the kidneys. It will be observed in the summary of the necropsy observations that none of the other parenchymatous organs showed any evidence of profound alteration such as was encountered in the kidneys. Hemorrhages were almost always present and they were seen most frequently in the gastro-intestinal tract, although they were not infrequently encountered elsewhere. Similar hemorrhages have also been observed by LeNoir[5] after operation for gastric ulcer. The patients in his series vomited large quantities of blood, and at necropsy the gastric ulcer was shriveled and no eroded vessel was seen. However, a severe hepatonephritis was uniformly present and the patients died in a state of uremia. The liver and kidneys both showed marked damage. Walters and Parham[6] have observed uremia and gastro-intestinal hemorrhages in patients who died following operation for obstructive jaundice, and Zaffagnini[7] saw hematuria in patients with gallstones. Hemorrhages from the gums was seen by Thiers[8] in a fatal case of apiol poisoning with uremia and severe liver damage, while Gundermann[9] experimentally produced uremia with blood in the urine and the gastro-intestinal tract by ligation of the hepatic artery. This procedure produced atrophy and degeneration of the liver. Moreover, by injecting liver cells intravenously he was able to produce a hemorrhagic diathesis with bleeding into the gastro-intestinal tract.

---

[3] Heyd, C. G.: "Liver Deaths" in Surgery of Gallbladder, J. A. M. A. **97:** 1847-1848 (Dec. 19) 1931.

[4] Walters, Waltman: Obstructive Jaundice: Physiologic and Surgical Aspects, Pub. of Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota.

[5] LeNoir, P.; Richet, C., Jr., and Jacquelin, A.: Ann. de méd. **9:** 225 (April) 1921.

[6] Walters, Waltman, and Parham, D.: Renal and Hepatic Insufficiency in Obstructive Jaundice, Surg., Gynec. & Obst. **35:** 605-609 (Nov.) 1922.

[7] Zaffagnini, A.: Arch. ital. di urol. **4:** 161 (Dec.) 1927.

[8] Thiers, H.: Fatal Hepatonephritis, Compt. rend. Soc. de biol. **106:** 303-304 (Feb. 6) 1931.

The explanations that have been advanced for the hemorrhagic phenomena have been ascribed to either impairment in fibrinogen formation or increase in bile salts in the blood. However, in the absence of jaundice and with no other evidence of impaired liver function in our cases, we feel sure that these two factors are highly speculative and relatively unimportant if not incorrect. Recently, White and Jankelson[10] noted severe hemorrhage from the gastro-intestinal tract in a group of cases of gallbladder disease in which jaundice was an unimportant factor, and they considered that a hepatitis associated with the diseased gallbladder elaborated a toxin into the blood which caused surface bleeding of the gastro-intestinal mucus.

Experimental studies have been carried out in animals by two of us[1] in an attempt to produce a secondary kidney injury. Through mechanical trauma to the liver, as well as by ligation of the hepatic artery, we induced hemorrhagic necrosis in the livers of dogs and rabbits, which was soon followed by degenerative changes in the kidneys. A striking rise in the nitrogenous products of the blood was seen, while a marked oliguria resulted, and the urine contained red cells, albumin and casts. If the animals were killed while the blood and urinary changes were most striking, lesions similar to those seen in our patients were observed. These experiments likewise suggested an elaboration of some toxin from the liver which acted more or less specifically on the kidneys.

TREATMENT

A careful analysis of these cases of liver death suggest that the primary factor in the syndrome is due to a diseased liver. In this type of death which we are reporting, the kidney damage resulting in uremia is probably brought on by toxic products elaborated in the liver, acting secondarily on the kidney. Unfortunately, it is difficult if not impossible to estimate the degree of liver damage which is present prior to operation, since it is rather definitely demonstrated that the liver function, so far as its physiologic activity is concerned, is not disturbed. Maintenance of sugar level, deaminization and bile production are all unaltered. And our experiences with function tests, which crudely estimate the ability of the liver as an excretory organ, have not been particularly promising. However, recently Graham[11] and Cole, by the use of iso-iodeikon (phentetiothalein sodium-N. N. R.) in doses of 2.5 Gm. to the average adult, have obtained such encouraging results that now they refuse to operate on patients with a high dye retention. It has been our rule since studying these cases in our series to supply the liver with glycogen by large amounts of sugar preoperatively which can be given by mouth or intravenously, since it has been shown by Bollman[12] that the detoxifying action of the liver is greatly increased when the hepatic parenchymatous cells have a generous glycogen storage.

Dr. Frank Mann[13] of the Mayo Clinic suggested the possibility that suturing of the liver around the hepatic fossa might cause sufficient hemorrhage and death of liver cells to produce toxic products, and this assumption seems quite reasonable in view of the fact that the most profound changes of both an acute and a chronic nature were found in the liver parenchyma in this region. Furthermore, the necropsies strongly suggest that dead liver tissue may be one of the possible sources of the toxin, since in our cases intrahepatic hemorrhages with necrotic liver cell foci were so often found. Hence, it might be inadvisable to suture the liver after cholecystectomy.

In dogs, Lamson, Minot and Robbins[14] observed a marked acceleration in hepatic repair after poisoning with carbon tetrachloride when the animals were given small amounts of calcium chloride, and Graham[11] has instituted the use of calciums in his postoperative gallbladder cases with happy results. After so-called hepatic coma has set in, the treatment is very difficult. Snell[15] mentions that in Morawitz's clinic lactic acid is used intravenously and this alone or in combination with dextrose apparently produces temporary improvement in hepatic function in these terminal states.

SUMMARY

From the foregoing observations, we feel that there is a definite type of so-called liver death which is due to some toxin elaborated in a diseased liver, which toxin acts directly on the kidneys, producing a profound degenerative change in those organs. We have observed a certain fairly definite clinical and pathologic syndrome which was seen in one case of traumatic liver pulpification, one of diffuse carcinomatous metastases in the liver, and four of long standing cholecystitis with a concomitant high grade hepatitis. All these patients died in a clinical state resembling uremia, and all showed extensive degenerative lesions in the kidneys. The blood and urinary studies were substantiated by the changes found in the kidneys. Hemorrhages from the mucous surfaces were present in four cases and their origin has not been explained.

This type of death resembles more closely the so-called hepatic exhaustion as outlined by Heyd[3] and should be differentiated from the deaths occurring after operation on the bile ducts when the patient is jaundiced, since jaundice was present in only one case in our series and even in this instance no change in the character of the bile drainage was ever observed.

CONCLUSIONS

The clinical behavior in this group of cases and their similarity at necropsy have led us to assume that liver damage, whether traumatic or infectious in origin, produces a selective toxin which may severely damage the kidneys.

In view of the fact that this syndrome has always followed damage to the liver and has occurred in individuals with previously normal kidneys (as regards known tests for kidney function), we believe that the pathologic changes in the kidney are secondary to the changes in the liver. Since jaundice is not a feature of the syndrome and since liver function is not, so far as we can determine, notably decreased, we believe that often severe, and mucous surface bleeding frequently became a prominent feature in the clinical picture In the latter part of the illness, blood often in large amounts was found in the stools and the vomitus The clinical picture then progressed to that of uremia with generalized low grade edema and almost total anuria The blood nitrogenous elements continued to increase and the patients died in a state clinically resembling uremia

---

[9] Gundermann, W.: München. med. Wchnschr. **60**: 2332-2333 (Oct.) 1913.

[10] White, F. W., and Jankelson, I. R.: New England J. Med. **205**: 793-797 (Oct. 22) 1931.

[11] Graham, E. A.: Illinois M. J. **63**: 196 (Sept) 1931.

[12] Bollman, J. L.: Proc. Staff Meet., Mayo Clin. **4**: 369 (Dec. 18) 1929.

[13] Mann, F. C.: Personal communication to the authors.

[14] Lamson, P. D.; Minot, A. S., and Robbins, B. H.: The Prevention and Treatment of Carbon Tetrochloride Intoxication, J. A. M. A. **90**: 345 (Feb. 4) 1928.

[15] Snell, A. M.: Diseases of the Liver as Observed in European Clinics, Proc. Staff Meet. Mayo Clin. **6**: 405 (July 8) 1931.

The conditions found at necropsy were relatively uniform Low grade generalized edema was almost always present and the operative wounds showed little or no healing The gastro-intestinal tract contained blood in large amounts, which apparently originated from submucous hemorrhages Not infrequently hemorrhages were found in the mucous membranes of the mouth, respiratory tract and kidney pelves The liver and kidneys were always the seat of striking degenerative changes In the former, either leukocytic infiltrations, necrosis and interstitial hemorrhages, or marked parenchymatous and fatty changes were present The most advanced lesions were seen in the liver tissue about the gallbladder fossa in these operative cases The kidneys always presented a marked nephrosis Parenchymatous swelling and loss of normal markings were the outstanding gross observations, while, microscopically, tubular epithelial degeneration progressing to actual necrosis was almost constantly observed Patchy focal hemorrhages and areas of leukocytic infiltration were the rule, while the glomerular changes were not noteworthy

CLASSIFICATION

In a large series of so-called liver deaths recently analyzed by Heyd,[3] wherein the death could not be ascribed to the usual types of mortality, he has classified the deaths into three groups, as follows

Group 1 "Hepatic exhaustion," which he thinks is due possibly to decreased chemical activity of the liver resulting in an alkalosis which causes death The mechanism of this condition is still quite obscure

Group 2 The jaundiced patient who has had a rather satisfactory postoperative course for a few days when a distinct change in the character of the bile drainage occurs, it becomes thin, watery and decreased in amount The patient becomes delirious, lapses into coma, and dies In these instances, Heyd thinks that the sudden release of the obstruction (the majority are common duct operations) may result in an acute secondary hyperemia of the liver with resultant failure of liver function

Group 3 The nonjaundiced patient with pancreatitis and common duct disease who, following a drainage of the common duct, does well for twenty-four hours and then goes into a state of shock with cessation of urinary secretion This is brought about he thinks, as a result of overwhelming intoxication of pancreatic origin

Unfortunately, no necropsy studies were recorded and very few substantial facts relating to the actual mechanism of these clinical manifestations are brought forward to account for them Therefore, we wish either to amend certain phases of this classification or at least to contribute some additional data to the study of this distressing problem

In our cases only two showed any evidence of jaundice, and in one of these it was very faint In neither instance did we consider the jaundice of any importance in the causation of the kidney damage, as no obstructive lesions were present and the kidneys did not show the microscopic picture of bile nephrosis The jaundiced patient presents a characteristic train of symptoms, which have been well summed up by Walters[4] and again by Heyd This type of case is referred to in group 2 by Heyd in the foregoing discussion In groups 1 and 3 in his series there was no jaundice and in group 3 he considered the condition due to pancreatitis resulting from common duct obstruction and he felt that some toxin was elaborated by the diseased pancreas which caused the clinical syndrome he has outlined Therefore, we feel that group 1 of Heyd's series, which he ascribes to "hepatic exhaustion," would more nearly compare to the cases we have observed

COMMENT

In all instances in which gallbladder disease was the reason for surgical intervention, we obtained a history of long standing cholecystitis and, at both the operation and the necropsy, liver damage of considerable duration was encountered We feel that the deaths which ensued in these individuals were not the result of cessation of liver function since there was apparently no impairment in glycogenesis, as evidenced by blood sugar determinations, nor was there any evidence of failure to deamidize the amino-acids, since urea formation was unhampered and progressive increase in the nitrogenous products in the blood was found in every case In all of our patients, the stools contained bile, and no other evidence of any lack of hepatic function was found Unfortunately, we did not carry out any tests for impairment of fibrogen production

MECHANISM

The mechanism responsible for the kidney damage is, of course, obscure All our patients died in a state clinically resembling uremia and in not a single instance was there any evidence of previous kidney damage Therefore, we concluded that the damage to the kidney must have been brought about by some toxin elaborated by the diseased liver which acted more or less specifically on the kidneys It will be observed in the summary of the necropsy observations that none of the other parenchymatous organs showed any evidence of profound alteration such as was encountered in the kidneys Hemorrhages were almost always present and they were seen most frequently in the gastro-intestinal tract, although they were not infrequently encountered elsewhere Similar hemorrhages have also been observed by LeNoir[5] after operation for gastric ulcer The patients in his series vomited large quantities of blood, and at necropsy the gastric ulcer was shriveled and no eroded vessel was seen However, a severe hepatonephritis was uniformly present and the patients died in a state of uremia The liver and kidneys both showed marked damage Walters and Parham[6] have observed uremia and gastro-intestinal hemorrhages in patients who died following operation for obstructive jaundice, and Zaffagnini[7] saw hematuria in patients with gallstones Hemorrhages from the gums was seen by Thiers[8] in a fatal case of apiol poisoning with uremia and severe liver damage, while Gundermann[9] experimentally produced uremia with blood in the urine and the gastro-intestinal tract by ligation of the hepatic artery. This procedure produced atrophy and degeneration of the liver. Moreover, by injecting liver cells intravenously he was able to produce a hemorrhagic diathesis with bleeding into the gastro-intestinal tract.

---

[3] Heyd C G Liver Deaths in Surgery of Gallbladder, J A M A **97**: 1847 1848 (Dec 19) 1931

[4] Walters, Waltman Obstructive Jaundice Physiologic and gical Aspects, Pub of Mayo Foundation for Medical Education and Research Graduate School, University of Minnesota

[5] LeNoir, P, Richet C, Jr, and Jacquelin, A Ann de med **9**: 225 (April) 1921

[6] Walters, Waltman, and Parham D Renal and Hepatic Insufficiency in Obstructive Jaundice, Surg, Gynec & Obst **35**: 605 609 (Nov) 1922

[7] Zaffagnini A Arch ital di urol **4**: 161 (Dec) 1927

[8] Thiers H Fatal Hepatonephritis, Compt rend Soc de biol **106**: 303 304 (Feb 6) 1931

The explanations that have been advanced for the hemorrhagic phenomena have been ascribed to either impairment in fibrinogen formation or increase in bile salts in the blood. However, in the absence of jaundice and with no other evidence of impaired liver function in our cases, we feel sure that these two factors are highly speculative and relatively unimportant if not incorrect. Recently, White and Jankelson[10] noted severe hemorrhage from the gastro-intestinal tract in a group of cases of gallbladder disease in which jaundice was an unimportant factor, and they considered that a hepatitis associated with the diseased gallbladder elaborated a toxin into the blood which caused surface bleeding of the gastro-intestinal mucus.

Experimental studies have been carried out in animals by two of us[1] in an attempt to produce a secondary kidney injury. Through mechanical trauma to the liver, as well as by ligation of the hepatic artery, we induced hemorrhagic necrosis in the livers of dogs and rabbits, which was soon followed by degenerative changes in the kidneys. A striking rise in the nitrogenous products of the blood was seen, while a marked oliguria resulted, and the urine contained red cells, albumin and casts. If the animals were killed while the blood and urinary changes were most striking, lesions similar to those seen in our patients were observed. These experiments likewise suggested an elaboration of some toxin from the liver which acted more or less specifically on the kidneys.

TREATMENT

A careful analysis of these cases of liver death suggest that the primary factor in the syndrome is due to a diseased liver. In this type of death which we are reporting, the kidney damage resulting in uremia is probably brought on by toxic products elaborated in the liver, acting secondarily on the kidney. Unfortunately, it is difficult if not impossible to estimate the degree of liver damage which is present prior to operation, since it is rather definitely demonstrated that the liver function, so far as its physiologic activity is concerned, is not disturbed. Maintenance of sugar level, deaminization and bile production are all unaltered. And our experiences with function tests, which crudely estimate the ability of the liver as an excretory organ, have not been particularly promising. However, recently Graham[11] and Cole, by the use of iso-iodeikon (phentetiothalein sodium-N. N. R.) in doses of 2.5 Gm. to the average adult, have obtained such encouraging results that now they refuse to operate on patients with a high dye retention. It has been our rule since studying these cases in our series to supply the liver with glycogen by large amounts of sugar preoperatively which can be given by mouth or intravenously, since it has been shown by Bollman[12] that the detoxifying action of the liver is greatly increased when the hepatic parenchymatous cells have a generous glycogen storage.

Dr. Frank Mann[13] of the Mayo Clinic suggested the possibility that suturing of the liver around the hepatic fossa might cause sufficient hemorrhage and death of liver cells to produce toxic products, and this assumption seems quite reasonable in view of the fact that the most profound changes of both an acute and a chronic nature were found in the liver parenchyma in this region. Furthermore, the necropsies strongly suggest that dead liver tissue may be one of the possible sources of the toxin, since in our cases intrahepatic hemorrhages with necrotic liver cell foci were so often found. Hence, it might be inadvisable to suture the liver after cholecystectomy.

In dogs, Lamson, Minot and Robbins[14] observed a marked acceleration in hepatic repair after poisoning with carbon tetrachloride when the animals were given small amounts of calcium chloride, and Graham[11] has instituted the use of calciums in his postoperative gallbladder cases with happy results. After so-called hepatic coma has set in, the treatment is very difficult. Snell[15] mentions that in Morawitz's clinic lactic acid is used intravenously and this alone or in combination with dextrose apparently produces temporary improvement in hepatic function in these terminal states.

SUMMARY

From the foregoing observations, we feel that there is a definite type of so-called liver death which is due to some toxin elaborated in a diseased liver, which toxin acts directly on the kidneys, producing a profound degenerative change in those organs. We have observed a certain fairly definite clinical and pathologic syndrome which was seen in one case of traumatic liver pulpification, one of diffuse carcinomatous metastases in the liver, and four of long standing cholecystitis with a concomitant high grade hepatitis. All these patients died in a clinical state resembling uremia, and all showed extensive degenerative lesions in the kidneys. The blood and urinary studies were substantiated by the changes found in the kidneys. Hemorrhages from the mucous surfaces were present in four cases and their origin has not been explained.

This type of death resembles more closely the so-called hepatic exhaustion as outlined by Heyd[3] and should be differentiated from the deaths occurring after operation on the bile ducts when the patient is jaundiced, since jaundice was present in only one case in our series and even in this instance no change in the character of the bile drainage was ever observed.

CONCLUSIONS

The clinical behavior in this group of cases and their similarity at necropsy have led us to assume that liver damage, whether traumatic or infectious in origin, produces a selective toxin which may severely damage the kidneys.

In view of the fact that this syndrome has always followed damage to the liver and has occurred in individuals with previously normal kidneys (as regards known tests for kidney function), we believe that the pathologic changes in the kidney are secondary to the changes in the liver. Since jaundice is not a feature of the syndrome and since liver function is not, so far as we can determine, notably decreased, we believe that the toxin has its origin in a by-product of liver cell destruction.

---

[9] Gundermann, W.: München. med. Wchnschr. **60**: 2332-2333 (Oct.) 1913.

[10] White, F. W., and Jankelson, I. R.: New England J. Med. **205**: 793-797 (Oct. 22) 1931.

[11] Graham, E. A.: Illinois M. J. **63**: 196 (Sept) 1931.

[12] Bollman, J. L.: Proc. Staff Meet., Mayo Clin. **4**: 369 (Dec. 18) 1929.

[13] Mann, F. C.: Personal communication to the authors.

[14] Lamson, P. D.; Minot, A. S., and Robbins, B. H.: The Prevention and Treatment of Carbon Tetrochloride Intoxication, J. A. M. A. **90**: 345 (Feb. 4) 1928.

[15] Snell, A. M.: Diseases of the Liver as Observed in European Clinics, Proc. Staff Meet. Mayo Clin. **6**: 405 (July 8) 1931.

There can be little doubt that the clinical manifestations represent a definite syndrome of particular importance in gallbladder surgery. The problem of its etiology and the exact nature of its toxin requires a continuation of the experimental studies which two of us (C. B. S. and F. C. H.) are conducting.

Until more definite information regarding its etiology is obtained, the treatment of this condition must necessarily be empirical. It seems certain that the syndrome is most frequently the result of surgical delay. It therefore follows that the most important part of the treatment, for the purpose of preventing its occurrence, is preoperative. Its recognition tends to substantiate the growing surgical opinion that definite cholecystitis should not be subject to prolonged medical treatment. Preoperative liver function tests may be valuable in determining the degree of liver damage.

The use of dextrose both preoperatively and postoperatively has been the most successful form of direct treatment in our experience. The use of calcium postoperatively, as suggested by Graham, may be of value.

Forty-Fourth and Mill Creek Parkway.

HYPERTHYROIDISM IN CHILDREN

A REVIEW OF FIFTY-SEVEN CASES

R. S. DINSMORE, M.D.
CLEVELAND

During the past few years, my associates and I have seen at the Cleveland Clinic a number of cases of hyperthyroidism in children. Although formerly it was thought that hyperthyroidism in children under 14 years of age occurred but rarely, our experience has led us to believe that this disease is not as uncommon as is generally supposed.

It is not within the province of this paper to review the various theories and hypotheses regarding the etiology of hyperthyroidism that have been presented, nor to review the bibliography that was so adequately covered by Helmholz[1] at the meeting of this association at Dallas, Texas, in 1926.

Means,[2] however, has discussed the two most prevalent views of Marine and of Plummer adequately and briefly, and has made the following pertinent statement: "It is evident that no one knows the primary cause of hyperthyroidism although there are those who believe that the thyroid is guilty of any one of the following disorders, or of both of the latter two: hypofunction, dysfunction and hyperfunction." In studying a group of children, however, it is especially interesting to consider the possible contributing factors in the production of the disease.

In reviewing the histories of a group of children, the possibility that there has been an hereditary factor occasionally presents itself. Dr. Crile operated on one such patient with marked hyperthyroidism, a child aged 14, on whose mother and maternal grandmother he had also operated for the same disease. I once operated on a Jewish boy of 14 who showed all the typical signs of hyperthyroidism. This lad had a brother two years younger in whom hyperthyroidism developed at exactly the same age. In three other cases, the mothers of children with hyperthyroidism had had the disease, and in one case, that of a boy, the father also had hyperthyroidism and was operated on later. In one case a mother's brother and in another the sister of the mother had hyperthyroidism.

The so-called constitutional factor is probably not important in this group of children, because in nearly every instance the child was said to be perfectly well until the onset of the disease. In certain cases, however, the statement has been made by the parents that the child had always been of a nervous temperament.

The racial factor is about the same as in adults. In our series of cases, the majority of the children were American born, of mixed parentage. I have seen the condition in an Italian child of 8 years. Seven cases occurred in Jewish children. I have seen only one case in a Negro child and only one in which the parents were Scandinavians.

In a few of the cases, the disease followed an infection, and in the case of one child who had had scarlet fever, followed by severe pyelitis for eight months, hyperthyroidism developed with an abrupt onset and a rapidly developing clinical course. In one case, the disease followed an attack of whooping cough. In another case, the patient's parents were quite insistent that the disease followed tonsillectomy, and in still another, in a patient who had had thyroid enlargement previously, the symptoms developed after an injury to the knee.

In one very severe case of exophthalmic goiter, the child also had a spastic paraplegia from a birth hemorrhage. In only one case was there an accompanying endocrine disorder. This girl presented all the symptoms of true hyperthyroidism, together with evidence of accompanying hypopituitarism. She had a very fine, soft skin, typical hyperplasia, hypertrophy of the breasts and a tendency to be overweight.

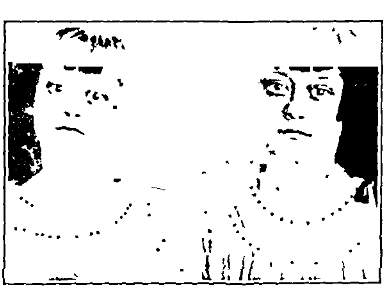


Fig 1.—The patient at the age of 9 years. The picture on the right shows her two months after thyroidectomy.

I have never been able to come to the conclusion that the administration of iodine as a preventive measure is a factor in the production of hyperthyroidism in children. Personally, I do not believe that iodine medication has either produced or lessened the incidence of the disease in children.

Geographically, our cases have come, for the most part, from the area about Cleveland, Pennsylvania and western New York, although three were from Indiana, three from Michigan and single cases from West Virginia, Illinois, Louisiana, Wisconsin and Wyoming.

Most of Helmholz's cases came from Minnesota, Iowa, Illinois and Wisconsin, the remainder coming from scattered localities in other states and in Canada.

In studying the onset of symptoms, I find that it is difficult to give absolute statistics, owing to the confused statements made by the parents.

From the Cleveland Clinic.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932

Owing to lack of space, this article is abbreviated in The Journal by the omission of some of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints

[1] Helmholz, Henry F Exophthalmic Goiter in Childhood, J. A. M. A. **87**: 157-163 (July 17) 1926

[2] Means, J H., and Richardson, E. P: Diagnosis and Treatment of Diseases of the Thyroid, in Christian, H A., and Mackenzie, James: Oxford Medicine, London, Oxford University Press, 1920, vol. 6.

In 70 per cent of our cases, either nervousness or enlargement of the gland was the first symptom noted by the parents. The incidence of these two symptoms as the initial one is about the same, that is, 35 per cent. Often, the parent was unable to state whether the fulness of the neck or the nervousness appeared first. In seven of the cases, it was stated that the enlargement of the neck and the nervousness appeared at the same time. In only one case was exophthalmos noted as the first symptom, although in two other cases its onset was noted at the same time as that of the enlargement of the gland. In four cases, tachycardia was noted as the primary symptom, and in two, the first symptom that attracted the attention of the parents was shortness of breath on slight exertion. Loss of weight was the primary symptom in one case. In one, in which the disease followed whooping cough, the parents insisted that all the symptoms and other signs, nervousness, enlargement of the neck, exophthalmos and tachycardia, appeared at the same time.

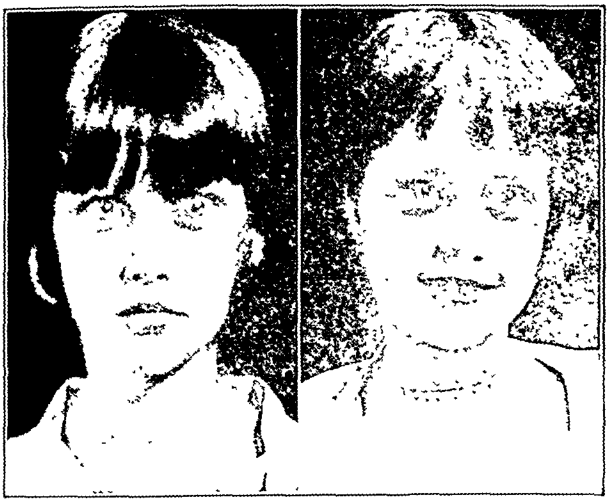


Fig. 2.—The patient at the age of 10 years. The picture on the right shows her one week after a second lobectomy.

Owing to the inaccuracies just mentioned, I am coming more and more to the belief that exact statistics concerning the sequence of symptoms will be fairly difficult to obtain. In general, however, it may be stated that enlargement of the gland and nervousness usually appear first, followed by tachycardia and exophthalmos. One child 4 years of age had had a rapid heart for a year before enlargement of the gland and exophthalmos were apparent.

The diagnosis of hyperthyroidism in a child is not difficult in most instances; as a matter of fact, these patients frequently come to us with the diagnosis already made, and in the typical case, even the casual observer can identify the disease. It is not within the scope of this paper to offer a detailed description of the typical symptoms presented by these children; among the most common symptoms are tachycardia, exophthalmos, enlargement of the thyroid gland, extreme nervousness, easy excitability, great irritability and the tendency to cry over the most trivial circumstances. In reviewing the symptoms presented by this group of patients as given in the accompanying table, I have found that they conform closely to those listed by Helmholz. A comparison of the frequency of these symptoms in our series with those of Helmholz is interesting.

Tachycardia was present in every case. The average pulse rate was 129, but varied from 100 to 180. Nervousness and enlargement of the thyroid were present in nearly every case. It is interesting to note that the incidence of bruit in our cases is much lower than that cited by Helmholz. I attribute this relative absence of bruit to the fact that most of these children had taken iodine, some of them for a fairly long time, and the gland had become involuted and very firm.

Comparison of Frequency of Symptoms in Helmholz's Cases and Those in Cases from the Cleveland Clinic

	Helmholz, 40 Cases	Cleveland Clinic, 57 Cases
Tachycardia	100%	100%
Nervousness	93%	91%
Thyroid enlargement	93%	93%
Exophthalmos	83%	76%
Bruit	70%	49%
Hyperhidrosis	67%	55%
Tremor	57%	66%
Loss of weight	53%	50%
Polyphagia	50%	40%
Weakness in quadriceps	47%	....
General weakness	....	58%
Gastro-intestinal symptoms	47%	43%
Dyspnea	40%	55%

In approximately two thirds of these cases, tremor had been a definite symptom, but the slight tremor some of the children have may be misinterpreted. Especially is this true in some of the borderline cases in which the tremor of a residual chorea must be ruled out.

In about half of the cases there had been loss of weight, in some instances amounting to as much as 20 pounds (9 Kg.). The weakness of which the patients complain is often a noticeable symptom, and in some cases myasthenia is marked. Helmholz has called especial attention to the presence of a weakness of the quadriceps femoris in these children. If a child with exophthalmic goiter is asked to step up onto a chair, he must get a start and steps up with a quick effort, while the average child steps up without effort and raises himself slowly. The other symptoms of hyperthyroidism in children are the same as in adults and need no comment.

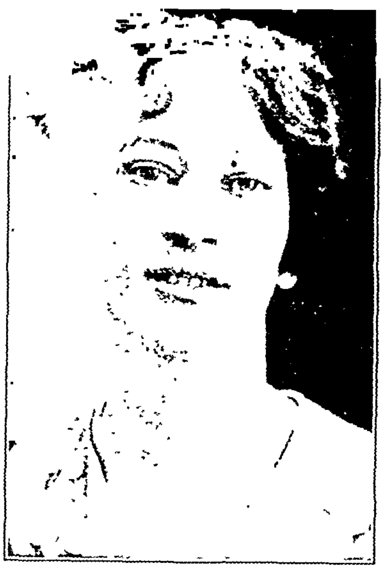


Fig. 5.—The patient at the age of 18. She was operated on at the age of 13 for exophthalmic goiter.

The symptoms may have been present from a few weeks to several years. In some cases in which the disease has persisted for a long time, it may be difficult to get an accurate history of the onset from the parents. Thus, in one instance, it was stated by the parents that all symptoms started abruptly and appeared within a fourteen day period. In 65 per cent of our cases, the disease appeared between the ages of 12 and 14 years;

in the other 35 per cent, it developed between the ages of 4 and 10 years. In one case, that of a child 4 years of age, there was a perfectly definite history that the disease had been present since the age of 2 years; the attending physician's clinical history forwarded with the patient verified this statement.

Our experience with estimations of the basal metabolism in children with hyperthyroidism has been generally unsatisfactory. In the first place, it is difficult to know that a child is in a true basal condition; secondly, there are such variations in the estimations of the basal metabolism determined by different standards that it usually appears that the standards available are not sufficiently accurate. Our tests have shown wide variation, especially from the initial reading. At the present time, we are taking repeated estimations with the patient in the hospital, by the Harris-Benedict standards for girls under 12 years of age and the Benedict-Talbot standard for boys under 14 years of age. An estimation is also made in each case by the Du Bois standards. We have not used the estimation of basal metabolism as an index for operability, and the clinical findings usually make the diagnosis obvious.

Formerly it was the practice to perform ligations in these cases and to send the child home for a period of three months, but in our latest series it has been possible to do lobectomy or thyroidectomy in practically every case. It must be remembered that for some reason the improvement that follows ligation is very definite. I have always felt that in children this improvement is greater than that seen in the average adult. Therefore, this procedure should not be discarded in favor of lobectomy if there is any doubt as to the wisdom of the latter as the primary operation.

We have now operated on forty-three patients with hyperthyroidism, with two deaths, one of which occurred before the advent of compound solution of iodine. The results of surgical intervention in this group of patients have been most gratifying, and we think that it is the method of choice for their treatment. The preparation of these patients for operation is a distinct problem and requires a great deal of time and patience on the part of the hospital staff, and especially of the anesthetist. As would be expected, the children are extremely excitable and do not take general inhalation anesthesia well. They are likely to have rather severe reactions after deep anesthesia, even though they have been carefully prepared for it, and for this reason local anesthesia and light nitrous oxide analgesia are used. The children are apprehensive, and their confidence and cooperation must be obtained. The anesthetist, who must be some one who is particularly interested in children, spends much time with each child before the operation and becomes his chum and boon companion. The child is made familiar with the anesthetic mask and is put under light inhalation anesthesia; as the result of this preparation, most of the children have behaved extremely well while the operation was being done.

Prioleau[3] has described in detail the routine that we use and has especially emphasized the fact that the child's fear of a surgical procedure in many instances is the unfortunate result of inadvertent statements about operations made in his presence by the parents.

The technical problems are the same as those encountered in adults, except that even greater care must be taken to leave enough tissue for the normal needs of a child. It must be remembered that hypothyroidism is likely to develop in these patients. A fairly marked reaction often occurs after operation; that is, all the symptoms are intensified, and it is interesting to note that often these children do not appear to be as ill as the chart would indicate. Marked tachycardia will develop along with a high temperature and flushing, but still the child does not complain, and is bright and alert and able to take fluids without difficulty. The immediate recovery from the operation is often astonishingly rapid, and when the patient is seen at the end of a few weeks, practically all of the symptoms will have disappeared.

Although these children usually leave the hospital with a small, hair-line scar that can hardly be seen, within a few weeks the scar becomes red and tender and a thick keloid develops. The incidence of keloid formation is very high in these cases. In the past three years, I have seen only one child in whom a keloid did not develop in the scar. This condition is best treated with grenz rays, which give satisfactory end-results. I think the general statement may safely be made that, the older the patient with hyperthyroidism, the better is the operative scar.

We are frequently questioned concerning the ultimate outcome of these children after operation. I have followed some of them through their high school and college days, and so far as I can tell they are perfectly normal in every respect, except that in an occasional case slight transient hypothyroidism may develop from time to time.

---

[3] Prioleau, W. H.: Anesthesia for Thyroidectomy in Children, Am. J. Surg. 7: 55-56 (July) 1929.

THE SURGICAL TREATMENT OF PROGRESSIVE EXOPHTHALMOS FOLLOWING THYROIDECTOMY

HOWARD C. NAFFZIGER, M.D.
AND
O. W. JONES, Jr., M.D.
SAN FRANCISCO

Exophthalmos as a sign of hyperplastic disease of the thyroid gland has been attributed to overactivity of certain smooth muscles in the orbit, innervated by the sympathetic nervous system, and to an increase of orbital fat. However, more attention has been given to the description of ocular signs, to which the names of some thirty or more persons are attached, than to a detailed study of exophthalmos with proof of the mechanism by which it is produced. It is rather astounding to find so little in the literature that would indicate that the orbital contents have been studied in persons dying from disorders of the thyroid gland. In view of the fact that exophthalmos is an obvious physical sign, readily apparent both to the physician and to the layman, it is surprising that nothing has been accomplished in the determination of the pathologic changes that produce it.

The result of surgical treatment for disease of the thyroid gland usually is gratifying to the patient and satisfactory to the surgeon. Occasionally so advanced a stage of the disease is reached that permanent damage already has occurred. In these patients the surgical risks are greater and restoration to health is incom-

---

From the Department of Surgery, University of California Medical School.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

plete. As a rule, exophthalmos recedes as other findings and physical signs abate after a thyroidectomy, but it is a matter of common observation that such regression does not follow always and that certain persons show a persistent, stationary exophthalmos. There is still a third group of patients in whom exophthalmos after thyroidectomy neither has receded nor become stationary, but actually has progressed. Though these cases are, fortunately, not very frequent, the literature, especially the ophthalmologic literature, contains many examples of this type.

The usual history of these persons is that the exophthalmos progresses until the lids no longer can cover the globes; and that, at about this time, certain other signs appear. The lids become extremely puffy, the scleral conjunctiva edematous and the movements of the globe restricted. Lacrimation and epiphora appear. A little later the conjunctival mucosa is engorged and protrudes between the lids. A stage soon is reached in which, from lack of protection, the cornea becomes dry, inflamed, ulcerated, then infected, and ophthalmitis follows. Enucleation becomes necessary, or death ensues. With the progressive exophthalmos, the limitation of movements of the eye muscles and the changes noted in the lids, there occurs, in some, a progressive blindness resulting from changes in the optic nerve. Partial or complete loss of vision may occur either from the changes in the cornea or in the optic nerve, or both.

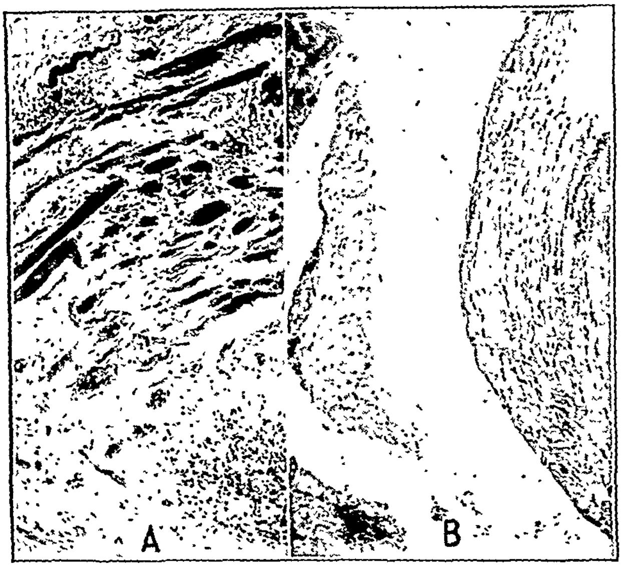


Fig. 1.—Photomicrograph of extra-ocular muscles: *B*, normal muscle; *A*, muscle taken from a patient with progressive exophthalmos, showing round cell infiltration, increased fibrous tissue, fragmentation and separation of muscle fibers.

Our attention was directed first toward the subject by a patient who presented all of these features—progressive exophthalmos after thyroidectomy, with extreme limitation of the movements of the eye muscles, swelling of the optic disks which had progressed to the stage of well advanced atrophy, and vision reduced to the recognition of gross objects at a distance of a few feet. Since that time others have been under our care, and this report presents the method of operative treatment. Incidentally, our studies have revealed the pathologic change responsible for this hitherto little understood condition. It affords a field for investigation of the factors concerned in the production of intrinsic changes in the extra-ocular muscles and in the optic nerve as well. Here it may suffice to say that progressive exophthalmos following thyroidectomy is of mechanical origin and is the result of a pronounced swelling of the extra-ocular muscles. Grossly, the muscles are from three to eight times their normal size. Microscopic study shows edema, round cell infiltration—often in a perivascular pattern—loss of muscle architecture, increase of fibrous tissue with areas of hyalinization, and fragmentation and destruction of muscle fibers (fig. 1).

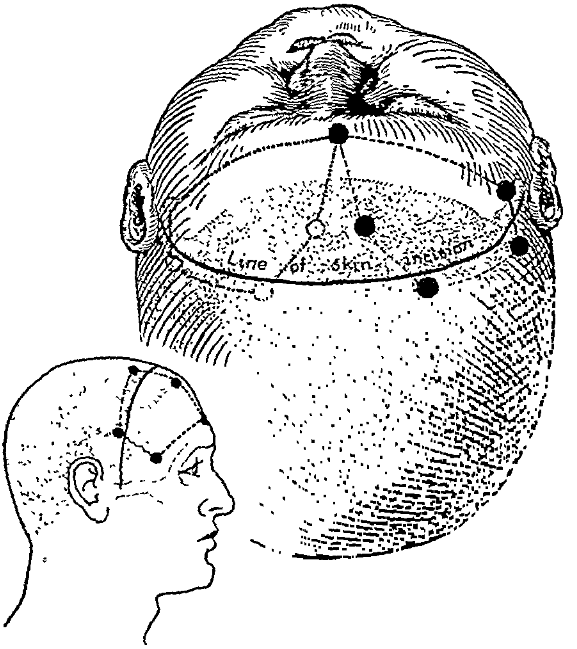


Fig. 2.—Incisions used. The solid black line indicates the coronal incision; the dotted lines, the two osteoplastic flaps.

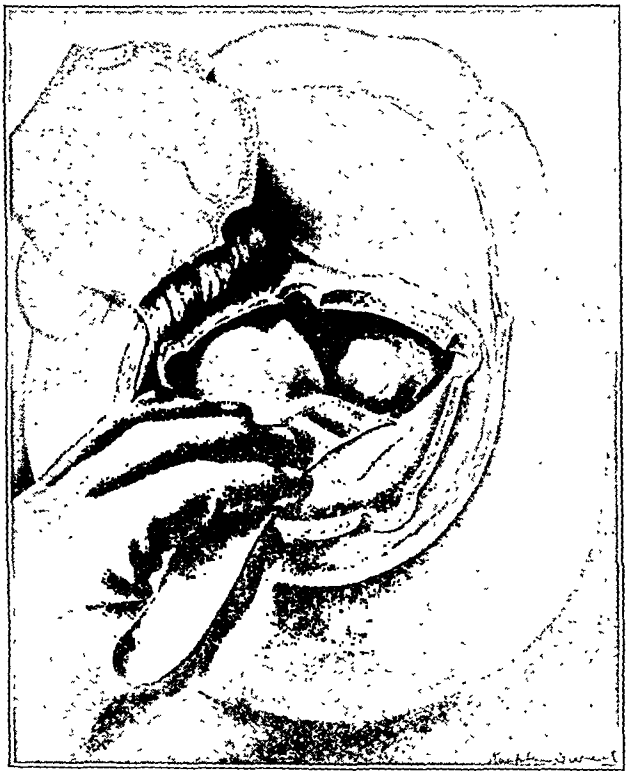


Fig. 3.—Intracranial approach to the orbit. Part of the orbital plate is removed, exposing the fascia of the orbit.

The operative treatment here outlined is not intended as a cosmetic operation, nor is it advised for those persons who have simply a persistent, stationary exophthalmos following thyroidectomy. This procedure is for those who have a progressive exophthalmos, usually with limitation of movements of the globe of the eye, with or without changes in the optic nerves and in vision. It may be pointed out here that, in certain instances, vision fails even though the cornea is clear, and the ophthalmoscopic examination reveals a normal fundus.

The principle of the operation is that of decompression of the orbit and the optic foramen in order to give adequate space for the increased orbital content and the constricted optic nerve. One well may ask at this stage, "Is such a procedure sufficient to halt the pathologic process that is occurring?" We only can answer that, up to date, it has seemed to be entirely adequate; in our patients there has been no recurrence, in all of them vision has been restored and there has been recession of the exophthalmos.

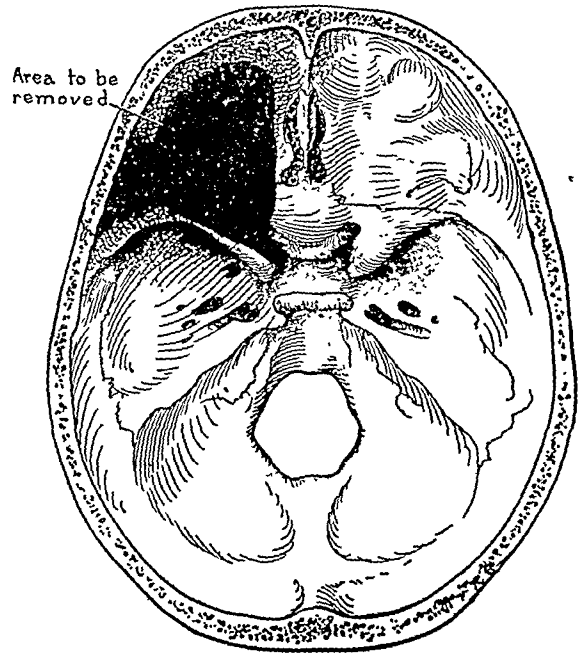


Fig. 4 —The base of the skull, showing the area of bone removed from the orbital plate and from the optic canal.

TECHNIC

The surgical procedure consists of reflecting bilateral frontal flaps, elevating the dura of the frontal lobe, unroofing the orbit and removing the upper portion of the optic foramen. The orbital fascia and the ring of Zinn are opened widely. As a preliminary to operation, roentgen studies are made to inform us of the height and extent of the frontal sinuses and the projection of the ethmoid and frontal sinuses into the orbital plate. Views of the optic foramina reveal the immediate relationship of the sphenoid sinus to it so that the operation may be conducted in such a way as not to open these cells.

The anesthetic is a matter of choice for the individual surgeon. In each instance we used a preliminary hypodermic of morphine, followed by avertin, usually 85 mg. per kilogram of body weight, with 0.5 per cent procaine hydrochloride for local anesthesia. In all but one instance this decompressive operation was completed on both orbits at one stage; on our first patient, two operations were performed.

We expose the frontal bone by a transverse incision from the temporal fossa on one side, across the frontoparietal region immediately behind the hair line, down to the temporal fossa on the opposite side (fig. 2). The scalp is dissected from the pericranium and is reflected forward so that the entire frontal bone on both sides is exposed down to the frontal sinus. Bilateral frontal flaps then are fashioned, the hinge of each being the temporal muscle. A small ridge of bone is left in the midline for the purpose of stabilizing these flaps when replaced. It will be found that such bone flaps retain an adequate vascular supply even though the scalp has been reflected from them. This is shown by the necessity for the use of bone wax, or other agents, to control oozing from the inner surface of the bone.

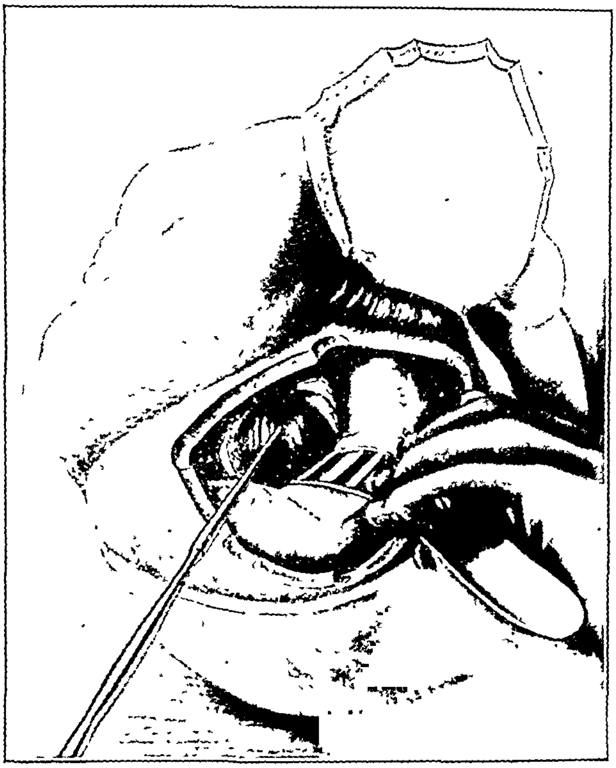


Fig. 5.—Enlarged levator superioris and superior oblique muscles.

Following the reflection of a bone flap, the dura is separated, by means of a broad spatula, from the floor of the anterior fossa in a way familiar to neurologic surgeons as an approach to tumors of the pituitary region. This stripping of the dura from the anterior fossa is carried back to the sphenoidal ridge and the base of the anterior clinoid. Mesially it is continued almost to the cribriform plate. The roof of the orbit then is opened (fig. 3). After carefully separating the orbital fascia so that it will not be opened until the bone removal is complete, we remove the orbital roof by rongeur. The bone opening is carried forward anteriorly to the frontal sinus and laterally to the point where the orbital roof merges into the lateral wall of the skull. Posteriorly, it is continued to the sphenoidal ridge, leaving only a thin line of bone attached to the small sinus, which is harbored in the dural reflection. The roof of the optic foramen and its superolateral margin are removed (fig. 4). Roentgenograms of the foramen, which show its relation to the sphe-

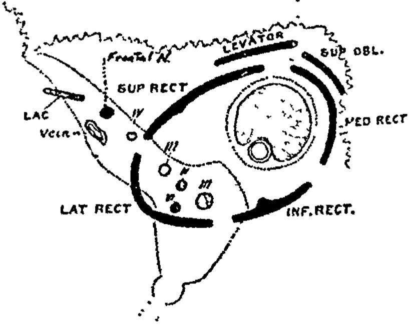


Fig. 6 —Schema to show the position of the annulus of Zinn and its relation to the apex of the orbit. (After S. Whitnall.)

noidal sinus, guide the surgeon as to the extent and direction of bone removal. The orbital contents will bulge through the bone opening as it is enlarged.

When the bone removal is completed, the orbital fascia is opened, care being taken to spare the frontal branches of the fifth nerve. The fat of the orbit varies somewhat in amount, but, in our cases, it has not been increased as stated in the conjectures as to the cause of exophthalmos; nor is it under tension. The orbital content is not particularly vascular.

By blunt dissection the levator superioris and the superior rectus muscles are exposed readily; careful attention should be paid to the fact that their nerve supply comes from below, and the nerve filaments should not be put under undue tension. The internal and external recti likewise may be exposed. The aspect of the muscles varies from a pale, half-cooked appearance to a much deeper color. They are enormously enlarged and thickened, instead of being small ribbons, perhaps 1 mm. or more in thickness and 1 cm. or so in breadth, and have a resistant, rubbery feeling. We estimated that some of the muscles we exposed were from three to eight times larger than normal (fig. 5).

In some patients we carried our dissection downward to expose the capsule of Tenon and the optic nerve as it enters the globe. Ordinarily this is unnecessary. Small fragments of muscle may be taken for pathologic examination; indeed, in the present state of our knowledge of the entire subject, this is advisable. Such specimens should be taken from the margin of the muscle, opposite the entrance of the nerve supply; enough should not be removed to weaken the muscle materially. The orbital fascia having been opened widely in all directions, the ring of Zinn, surrounding the orbital fissure and the optic foramen, may be slit (fig. 6). Usually this is done at the outer margin of the superior rectus muscle.

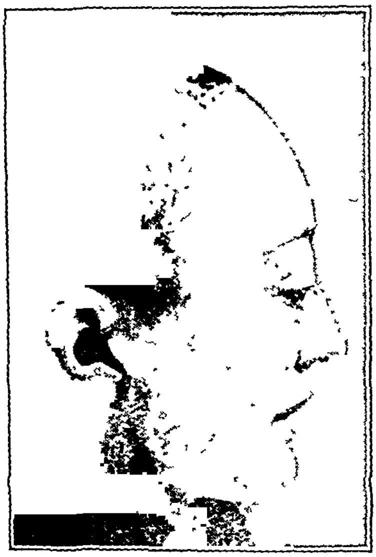


Fig 7.—The scar of operation within the hair line.

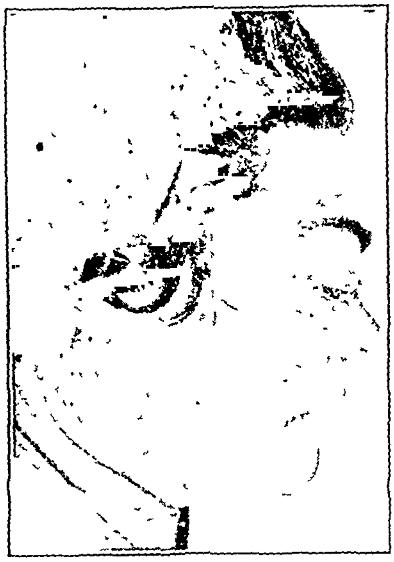


Fig 8.—E H. before operation, showing proptosis and inability to close the lids.

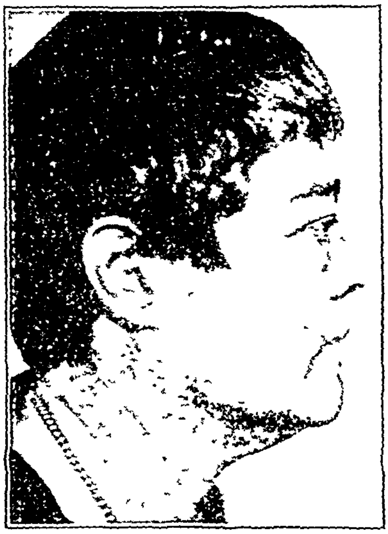


Fig 9.—E H one year after operation. Compare with figure 8.

As a rule hemostasis is not a problem. The orbital content is not vascular and, after oozing from the bone has been controlled carefully, the dura is allowed to come down and rest directly on the orbital content. A similar procedure then is carried out on the opposite side. The bone flaps are replaced and fastened together across the ridge of bone in the midline, the scalp is returned to its former position and is sutured. Separate sutures for the galea and skin are used. The bone openings of the flap, particularly those of the frontal region, are filled in with bone dust or small fragments of bone and the aponeurosis is sutured carefully over them to prevent dimpling of the scalp (fig. 7).

On conclusion of the operation, it will be found that there has been marked recession of the eyes, and that the globes pulsate. Within some hours, edema from handling will occur, and protrusion of the eyes will begin again. This is marked and may be progressive for the first three or four days. During this time the utmost care is needed to protect the cornea. Boric acid ointment for the protruding conjunctiva, careful washing with 2 per cent boric acid solution, and protective goggles are used. After four or five days, there is gradual recession of the edema and, by the end of ten days or two weeks, protrusion of the globes will be found to be less than it was before operation, and the movements of the eye muscles perhaps will be of the same range and degree as before operation. From this time on, there will be steady, slow improvement, both in the range of ocular movements and in the recession of the globes. It has been our experience that this improvement will continue over many months, and, in our most advanced cases, the condition of the eyeballs approached normal only after a lapse of eight months or a year (figs. 8 and 9). In our experience, subjective improvement in vision begins from the fifth to the tenth day and becomes even more striking later. The swelling of the optic disks regresses gradually, and hemorrhages in the retina disappear. Unless a marked state of atrophy has occurred already, satisfactory vision may be expected. Some of those operated on show a faint, persistent pulsation of the globe, not discernible on ordinary inspection, but seen if carefully looked for. Patients ordinarily are unaware of this pulsation and no subjective disturbances of vision result from it.

As to the surgical results obtained, six patients have had bilateral orbital decompressions, that is, twelve orbits have been investigated and treated. Four patients were operated on at the University of California Hospital; one was operated on by Dr. R. E. Semmes of Memphis, and one by Dr. P. C. Bucy of the University of Chicago. From these surgeons communications and reports on their patients and on the pathologic material were received.

There have been no deaths and no postoperative complications other than the temporary edema of the orbital tissues. In all of the patients treated, the results have been gratifying; vision has been restored, optic atrophy has been halted, exophthalmos has decreased and an increased range of ocular movements has followed. Considering the hitherto hopeless outlook for this group of patients, surgical treatment has been singularly gratifying, not only in its results, but in making clear to us the pathologic changes responsible for this type of exophthalmos.

THE END-RESULTS OF SURGERY IN EXOPHTHALMIC GOITER

HOWARD M. CLUTE, M D.
AND
J ROSS VEAL, M D.
BOSTON

The immediate advantages of surgical measures in the treatment of exophthalmic goiter have been convincingly demonstrated. The operation of subtotal thyroidectomy has been made a safe procedure. It is important, however, to learn by careful clinical examination and laboratory confirmation what the ultimate result may be in patients who some years before have had subtotal thyroidectomy for exophthalmic goiter. In a disease that causes such striking effects on various parts of the body, it is valuable to learn whether or not subtotal thyroidectomy produces a permanent improvement, whether the future lives of patients subjected to the procedure are seriously affected by the disease and whether or not the normal course of life is materially altered by the removal of a considerable portion of the thyroid gland.

For the purpose of this study it was determined to ascertain the results of subtotal thyroidectomy for exophthalmic goiter in a series of patients on whom operations had been performed five or more years before the present writing. The use of compound solution of iodine was first adopted in 1924 and 1925; since this made such a definite change in the operability of patients with exophthalmic goiter and in their postoperative recovery, it was felt that a survey of the late results of operation for exophthalmic goiter would best be obtained by starting with patients operated on in 1926, when compound solution of iodine was used as a routine, as it is at present. For the purpose of this study, then, a consecutive series of patients with exophthalmic goiter operated on in 1926 was selected. Since the study was started in the fall of 1931 but was not completed until the spring of 1932, every patient reported on was operated on at least five years before; many of them, over five years before.

Table 1—*Material for Study**

Ninety-seven patients with exophthalmic goiter operated on in 1926	
Consecutive cases	186
Not located	56
Letters only (not used)	26
Examination only (not used)	7
Examination and metabolism used in the study	97

* The cases reported in this paper were, as nearly as possible, consecutive cases in which operation was performed in 1926, followed by metabolic tests and clinical examinations in 1931 and 1932

Letters were sent to 186 consecutive patients with exophthalmic goiter (table 1). Of these we were unable to locate 56, but we succeeded in following 130, or 69 per cent, of these five-year cases. In 26 cases our only information was received by letter. These letters we discarded; we did not use them, because the information was in some measure unreliable. In 7 cases our information came from personal examination of the patient in the clinic, but in these 7 cases we were unable to secure tests for metabolism; these cases, therefore, were also excluded. We have been able to make clinical examinations and metabolism tests of 97 consecutive patients in this follow-up study, which is approximately 50 per cent of all the patients to whom we wrote. In this paper we shall summarize the results of surgical treatment on the 97 patients who have been followed consistently for over five years since operation and have been checked by personal examination and basal metabolic estimations.

It is of interest to note that in 1926, 415 patients were operated on for exophthalmic goiter in the clinic. Five hundred and seventy-four operations were necessary in this group. There were 3 deaths—a mortality rate of 0.72 per cent by patients or of 0.52 per cent by operations. In the clinic these figures still closely represent the yearly mortality average since 1926 in dealing with this type of operation for goiter (table 2).

We have always been impressed with the necessity for careful postoperative examinations of patients with hyperthyroidism, and in dealing with this disease we have insisted, whenever possible, that metabolism tests be taken not only before operation to confirm the diagnosis but also immediately after operation to note the improvement. Furthermore, each patient, after discharge from the hospital, is requested to return every three months during the first postoperative year for clinical examination and metabolism tests. Occasionally patients are unable to return for all 4 tests during the first year after operation, but they usually return for at least 2 tests in the first postoperative year. Of the 97 patients whom we followed in this series, this routine of preoperative metabolism tests and postoperative follow-up metabolism tests for the first year was carried out with relatively few exceptions. We can, therefore, with these repeated examinations, give not only our clinical impression of the severity of the disease and the degree of improvement at varying intervals after the operation but also the metabolic follow-up to check these clinical impressions. This method, we feel, offers a graphic demonstration of the efficacy of surgical measures, something which is available in but few other diseases. Since practically all of the operations on these patients were done either by Dr. Lahey or one of us (Dr. Clute), the end results here cited demonstrate the value of an established treatment that has not changed in any major detail since that time.

In practically every case the basal metabolic rates of these 97 patients were taken the day after admis-

Table 2—*Operative Mortality in Exophthalmic Goiter**

	Cases	Operations	Deaths	Case Mortality, Per Cent	Operative Mortality, Per Cent
1926	415	574	3	0.72	0.52
1927	439	596	4	0.9	0.67
1928	536	676	0	0.0	0.0
1929	448	539	4	0.89	0.74
1930	398	568	5	1.25	0.88
1931	472	648	3	0.63	0.46
Totals	2,708	3,601	19	0.70	0.52

* The figures in the table demonstrate the fact that surgical management of exophthalmic goiter is now a safe procedure.

From the Lahey Clinic

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932 sion to the hospital, following a night of rest. As would be expected, there was a wide range of rates in this group at entrance. Some of those with low rates had been receiving iodine before coming to the hospital, so that their rates were probably not an exact measure of the degree of hyperthyroidism. On the other hand, certain patients in this group undoubtedly had excessively high rates, owing to their nervousness and fear of the test. The average basal metabolic rate for the entire group at entrance was + 54 per cent.

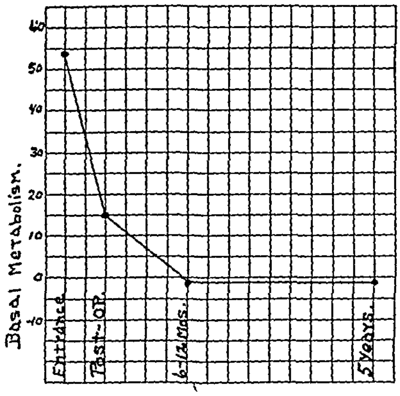


Chart 1.—The average basal metabolic rate of the 97 patients over a period of five years after operation

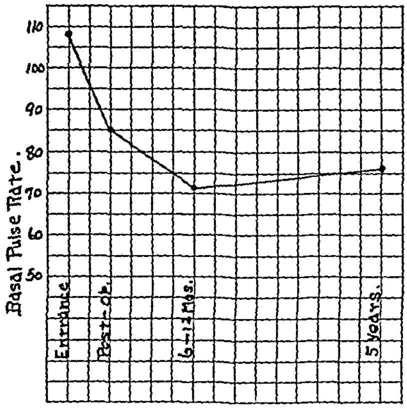


Chart 2.—The basal pulse rate of the 97 patients over a period of five years following operation

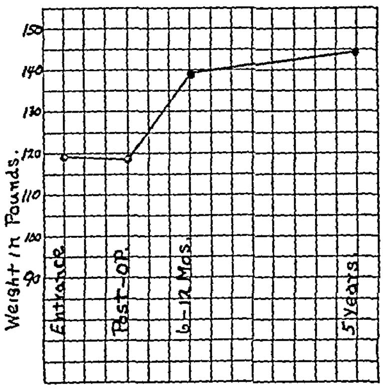


Chart 3.—The average weight of the 97 patients over a period of five years after operation.

After the patients were prepared for operation with compound solution of iodine and rest, a subtotal thyroidectomy was performed. In 35 per cent of cases it was necessary to do this in divided operations. It is generally recognized, and this we have demonstrated to our satisfaction, that subtotal thyroidectomy by divided operations gives the same ultimate improvement in the clinical symptoms and metabolic rates that subtotal thyroidectomy does in a one-stage operation.[1] The average basal metabolic rate of these 97 patients after their final operation on discharge from the hospital was + 15 per cent.

Ninety-three of this group of patients were followed postoperatively with metabolic estimations and clinical examinations at intervals of from six months to a year. The average metabolic rate in these 93 patients at this interval was — 1 per cent.

The final check-up examination that we were able to make on 97 patients from five to six years after operation showed that the average basal metabolic rate for the entire group at this time was — 1 per cent (chart 1).

From this summary of the basal metabolic rates in this group of patients who had had exophthalmic goiter it is apparent that subtotal thyroidectomy produces an immediate return of the basal metabolism to nearly normal, that the metabolic rate reaches normal in from six months to a year after operation in the average patient, and that it is still at a normal level five or more years after the operation has been performed.

It has been definitely shown that the resting pulse rate in exophthalmic goiter roughly parallels the basal metabolic rate. In extremely toxic patients with high basal metabolic rates the pulse rate taken during rest is relatively high, and, correspondingly, in patients with lower metabolic rates the pulse rate is low. In this group of patients we find the basal pulse rate in its course following closely the basal metabolic rate during the period of the disease and in the following years.

In 97 cases the average resting pulse rate at the time of the entrance metabolism test was 108. Following operation the average pulse rate in 97 cases was 85. In the metabolism test made from six months to one year after operation the basal pulse rate in 93 cases was 72. In the final metabolism test, made five years after operation in 96 cases, the average pulse rate was 76 (chart 2).

Marked loss in weight is one of the outstanding symptoms of exophthalmic goiter that permit of analysis and study. In general the more serious the toxicity, the lower the weight; on the other hand, the more complete the return of the patient to normal, the more definite is the gain in weight.

In these 96 cases the average weight on admission was 119 pounds (54 Kg.). Six days postoperatively the average weight for the same group was 118 pounds (53.5 Kg.). This lack of significant variation in body weight during the period of preparation for operation and in the immediate postoperative course demonstrates, we believe, that with the present ideas of treatment of exophthalmic goiter, which include the provision of an adequate intake of food for the increased metabolic requirements, loss of weight at once ceases in the majority of patients when treatment is instituted.

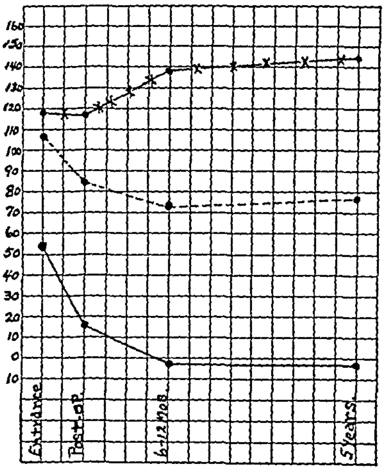


Chart 4.—The effect of subtotal thyroidectomy in exophthalmic goiter. Note the immediate fall of the pulse rate and the basal metabolism in the week following operation and the slight fall in weight at the same time. Following this is seen a definite elevation in weight and a further drop in basal pulse rate and basal metabolic rate in the five year period following operation. The continuous line indicates basal metabolic rate, the broken line, the pulse rate, and the x line, the weight.

The average weight of 92 patients taken from six months to a year after operation had increased to 139 pounds (63 Kg.). In 96 patients in whom the weight was listed from five to six years after operation the average weight was 143 pounds (64.9) Kg.) showing an average gain of 24 pounds (10.9 Kg.) over a period of from five to six years (chart 3).

---

[1] Clute, Howard M.: The Effect of Compound Solution of Iodine and Rest in the Surgery of Exophthalmic Goiter, J. A. M. A. 86: 105 (Jan 9) 1926.

Exophthalmos is one of the prominent effects of exophthalmic goiter, and since it is so disfiguring, it is one of which patients are most anxious to be relieved. In 100 consecutive patients examined in 1926, 62 were noted as having definite and unquestionable exophthalmos preoperatively—an incidence of 62 per cent. Twenty-one of the 100 patients showed exophthalmos five years later.

Table 3.—*Exophthalmos*

100 patients examined in 1926	
Exophthalmos present	62
Exophthalmis absent	38
The same 100 patients examined 5 years later	
Exophthalmos present	21
Exophthalmos absent	79
Of 62 patients having exophthalmos in 1926	
43 showed none five years later	
69.3 per cent of exophthalmos cured	
In 2 patients exophthalmos first appeared after operation	

In 2 of the 21 patients the exophthalmos had appeared postoperatively within a relatively short time before the present writing, and had not been present at the time of the original examination five years previously. Of the 62 patients who had exophthalmos in 1926, in 43, or 69.3 per cent, it disappeared following subtotal thyroidectomy (chart 4). We feel from these figures that we may properly anticipate that 7 of 10 patients having exophthalmos at the time of their first examination will be free of the exophthalmos when surgically relieved of hyperthyroidism. The late occurrence of exophthalmos is explained in one case by a recurrence of slight toxicity. In the other patient there was no obvious explanation for its occurrence (table 3).

Every one dealing with exophthalmic goiter appreciates the fact that myxedema may develop in a certain number of patients following subtotal thyroidectomy. It is because of the possibility of this condition, as well as that of recurrent or persisting toxicity, that follow-up contact with goiter patients who have had hyperthyroidism should be maintained. In this group of 97 patients, myxedema occurred in 3 as a persistent condition; it is still present and requires treatment with thyroid extract. It has been said that myxedema never follows subtotal thyroidectomy for exophthalmic goiter unless marked thyroiditis is present in the gland at the time of operation. One of the 3 patients suffering from myxedema showed thyroiditis, grade II. In neither of the others was thyroiditis reported by the pathologist (table 4).

Table 4.—*Myxedema* *

Patients followed	97
Patients having persistent myxedema	3
Thyroiditis present in patients with myxedema	1
All three patients well under thyroid medication	

* Persistent myxedema occurred 3 times in the 97 patients followed for five years.

All 3 patients with definite myxedema are now well, and it is difficult for us to report their cases with complete fairness in our final analysis of the results of surgical measures in exophthalmic goiter. We believe that they should be considered as patients who are cured of exophthalmic goiter, yet we do not feel that they should be placed in the group with those who are cured and do not require further treatment for myxedema. We are unable to note anything about these patients at the present time that appears abnormal. They feel well, work regularly and enjoy life; nevertheless, they are patients with myxedema following thyroidectomy. They take desiccated thyroid regularly, and therefore cannot be classified as ideally cured.

Four patients in the group had low basal metabolic rates when the metabolism test was made three months after operation. We believe that these patients had transient myxedema. The basal metabolic rates of all have now returned to normal; none of them require thyroid extract; all are apparently well, and we consider them as patients cured of exophthalmic goiter. In the past we frequently felt that if a patient had a metabolic rate of — 16 we should give him desiccated thyroid whether or not he had clinical evidences of myxedema. Recent studies of the blood cholesterol in patients with low basal metabolic rates made in the clinic by Dr. Lewis M. Hurxthal have been most helpful to us in dealing with these patients. In patients having low basal metabolic rates who showed no obvious clinical evidence of myxedema we have found the blood cholesterol normal. If, however, the basal metabolic rate is markedly elevated, it has been established that these patients with slightly low rates must be considered as having myxedema, and that they will show definite improvement on thyroid medication.

Table 5.—*Postoperative Hyperthyroidism in Twelve Patients* *

I. Persisting hyperthyroidism—6 patients
  (a) 4 required reoperation
    (1) 1 was cured
    (2) 1 died (embolus)
    (3) 2 are still toxic but are controlled with compound solution of iodine
  (b) 2 are mildly toxic but are controlled with compound solution of iodine
II. Recurrent hyperthyroidism—6 patients
  (a) 2 required reoperation
    (1) 1 has been cured for three years
    (2) 1 was recently operated on
  (b) 4 are mildly toxic but are controlled with compound solution of iodine

* The incidence of postoperative hyperthyroidism in the 97 patients includes all hyperthyroidism occurring during the five year interval after operation.

From our observation of the patients with myxedema following thyroidectomy and of their ability to work and pursue their regular course of life, we feel that myxedema is not a condition to be feared. While it is undesirable to produce myxedema, it doubtless is preferable to a persistent hyperthyroidism.

The persistence or recurrence of hyperthyroidism after subtotal thyroidectomy for exophthalmic goiter is the most important reason for postoperative estimations of metabolism and postoperative examinations of these patients. We have always known that some degree of postoperative toxicity was present in from 6 to 10 per cent of our patients; at times it was so mild as to be negligible, and at other times so severe as to require reoperation. In our present study, hyperthyroidism was found to have recurred in 12 patients in this group after their first operation had been completed (table 5). We have endeavored to be extremely critical and frank in allocating patients as having persistent hyperthyroidism, and we believe that this figure is, if anything, too high for an average group of postoperative cases. We know that patients with persisting hyperthyroidism are among the first to return in any follow-up study, while patients who are perfectly well are the most difficult to persuade to return.

Hyperthyroidism after thyroidectomy occurs in 2 distinctly different groups of patients having different clinical histories. In one group the hyperthyroidism is clearly *persistent* after thyroidectomy. These patients have a basal metabolic rate which never quite reaches normal after operation, and which in the course of weeks or months persists at this or a higher level. In the other group of patients the hyperthyroidism is definitely and completely cured for an interval of from six months to a year or more after thyroidectomy. This is shown by the complete relief from all clinical evidences of the disease and by a return of the metabolic rate to a normal figure. When hyperthyroidism arises in these patients, we consider it *recurrent* hyperthyroidism.

The patients with persistent hyperthyroidism are those who have been most difficult to cure. In this group of 6, 4 required operations later, and only 1 was cured. Two of these 4 are still toxic, but their symptoms are adequately controlled with compound solution of iodine, and they are able to lead normal lives. One of the 4, a patient with established auricular fibrillation for over five years, died of an embolus eight days following a recent secondary operation on the thyroid gland. The remaining 2 of these 6 patients with persisting hyperthyroidism are still mildly toxic but the condition is being adequately controlled with compound solution of iodine.

In the 6 patients who had a recurrence of hyperthyroidism, 2 required later operations; 1 of the latter has remained well, with a normal metabolic rate, for three years. The other was operaterd on so recently that no report is adequate. The remaining 4 patients with recurrences all had hyperthyroidism of a mild type and their condition is completely and adequately controlled with compound solution of iodine, in daily doses of 10 minims.

Injury to the recurrent laryngeal nerve during the course of operation on the thyroid gland is an accident that may occur and produce most distressing consequences. In any consideration of the results of operation in exophthalmic goiter the occurrence of bilateral paralysis of the recurrent laryngeal nerve should be discussed. This complication did not occur in this series of patients, and has occurred but once in our entire experience with over 10,600 operations for goiter in the clinic. Obviously, then, injury to the recurrent laryngeal nerve in thyroid surgery is not a feature of such danger as to be considered by any one fearful of operating for exophthalmic goiter. Injuries to a single recurrent nerve have occurred, but they have never been sufficiently serious to cause troublesome symptoms.

Injury to parathyroid bodies in the course of thyroidectomy is frequently discussed and is considered as an outstanding danger. In our entire experience with over 10,600 operations for goiter, complete tetany has occurred but 3 times, and transient tetany, 11 times. In the last five years only 4 cases of tetany have been seen, and 3 of these were in secondary operations on the thyroid gland. One case of transient tetany occurred in this group of patients operated on in 1926. This patient was reexamined recently and found to have no evidence of tetany now and to require no treatment for the condition. She has borne a child since the operation on her thyroid gland; following the delivery of the baby she had tetany again for a few days. This was readily controlled with calcium lactate and viosterol administered by mouth, and her blood calcium and a clinical examination now show that she is entirely free from any evidence of the disease. We do not feel that tetany is to be feared as a likely complication of present-day operations on the thyroid.

In the entire group of 134 patients followed by mail and examination it was found that in the five to six year interval since operation 4 had died. It is interesting to note the causes of death in these patients: 2 died of pneumonia at intervals of two and three years after operation; 1 died of cancer of the pancreas some months after operation, and 1 died of nephritis four and one half years after operation.

Table 6.—*Summary of End-Results with Ninety-Seven Cases Five Years After Operation*

Well	82
Well after reoperation or administration of compound solution of iodine	7
Well but requiring thyroid extract	3
Total cases relieved by operation	92 or 94.8%
Toxic but controlled with compound solution of iodine	4
Dead after reoperation	1

In summarizing the results obtained in this group of 97 patients who have been accurately followed, we feel that in 82 patients complete and satisfactory cure was obtained. In 7 other patients slight toxicity is still present, entirely controlled by either secondary operation or compound solution of iodine. In three patients of the group myxedema developed; this was entirely controlled by desiccated thyroid. Four of the patients in the group are still toxic. None of the 4 is in any way incapacitated, and all are working. One of the patients in the group died following a recent secondary operation for recurrent hyperthyroidism and congestive heart failure (table 6). It is, therefore, our belief that 92, or 94.8 per cent, of these 97 patients are cured of their disease by subtotal thyroidectomy, and that this figure may be assumed to be a fair estimate of the probability of cure of exophthalmic goiter by adequate surgical measures.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. DINSMORE, DRS. NAFFZIGER AND JONES, AND DRS. CLUTE AND VEAL

Dr. R. E. Semmes, Memphis, Tenn.: A patient on whom I operated for progressive exophthalmos had had a subtotal thyroidectomy a year before, with relief of all his symptoms except the exophthalmos. I first saw him with his eyes protruding so that the lids would not cover the cornea, and there was already some desquamation from exposure. His vision had been reduced to 10/200 in the left eye and 15/200 in the right eye, and it was necessary for him to be led. The exophthalmos was greater in the left eye. With the experience of Drs. Naffziger and Jones in mind, I turned down the usual transfrontal flap on the left side, and when the orbital roof was opened the capsule of the eye bulged markedly. On opening the capsule I found that there was not only no increase in the orbital fat but almost no orbital fat present. The muscles were pale and edematous in appearance, as in the case of Drs Naffziger and Jones, and they were estimated to be approximately ten times the size of the normal. After I removed the roof of the orbit and the top of the optic foramen and closed the flap, the patient's eye had gone back to the normal position on that side. There was a good deal of swelling for a few days after the operation, but this subsided rather rapidly. At present, with the recession of the left eye, the vision has returned to normal on that side. In the right eye the vision is now reduced to 10/200. The basal metabolic rate is subnormal (—15). The blood cholesterol is up to about 390 and there are other evidences of myxedema. Therefore with the idea that this condition might be associated with myxedema, I have administered thyroid extract, without any benefit. I have also continued the dehydration without much benefit and am therefore going to resort to operative procedure again.

Dr. E. R. Arn, Dayton, Ohio: I shall limit my discussion to that portion of the paper of Drs. Clute and Veal which refers to persistent hyperthyroidism. Those who have had a wide experience in the field of goiter surgery have encountered from time to time cases of toxic diffuse goiter in which the symptoms of hyperthyroidism have either persisted or recurred following adequate subtotal thyroidectomy. In such cases it has been common practice to do a second exploration of the thyroid area. In some instances a considerable amount of thyroid tissue, in excess of that which was left at the time of the first operation, will be found. Radical removal of the remaining thyroid tissue will result in a disappearance of the symptoms of hyperthyroidism in a majority of such cases. On the other hand, the secondary operation will occasionally reveal only a few islands of thyroid tissue remaining after the first operation, and the surgeon feels reluctant to remove any of this tissue. The surgeon may satisfy himself by examination of the thyroid area that further operation on the thyroid will be useless. Common experience has revealed that the continuous administration of compound solution of iodine is of little or no avail in such cases. For this type of case it has become apparent that some new approach to the problem is indicated. Stimulated by the results obtained by Crile, following suprarenal denervation in such cases, I have subjected a small group of patients of this type to this operation, with uniformly favorable results. A complete report of my experiences with the Crile operation will be published in the near future. Three of the patients on whom bilateral suprarenal denervation was done were relieved of persistent exophthalmos in addition to the general improvement as related to their hyperthyroid symptoms. It has long been recognized that the suprarenals and the sympathetic nervous system are involved in the Graves syndrome. Suprarenal denervation appears to provide a new and effectual method for further controlling the sympathetic nervous system imbalance and the concomitant endocrinal dysfunction.

Dr. Donald Guthrie, Sayre, Pa.: I am fully in accord with what Dr. Dinsmore says as to the familial tendency in goiters seen in young children. I also believe that infection plays an important part. One sometimes becomes almost weary in examining case after case brought by frightened parents who have been told by a school examining physician that their child has a goiter and needs operation. It is well known that these are largely the harmless adolescent goiters, but it must be remembered that every once in a while as a result of school examination one of these children is picked up and referred early. I should like to ask Dr. Dinsmore just how much gland he leaves behind in these cases. It has always been my fear of throwing some of these children into myxedema. I would far rather get along with a persistent mild case of hyperthyroidism following operation than to have myxedema as a complication. It has been my practice for a long time to leave behind nearly two times as much gland as I would in an adult showing the same amount of symptoms, for one never knows just exactly the demands that may be made on the thyroid in the future. I should like to ask Drs. Clute and Veal what their plan, if any, is about the eradication of foci of infection following operation, and also just how much the normal activities of their patients are limited, and further if they can report the average basal metabolic readings just before operation; in other words, what they believe is the time to operate on these patients after a period of preparation.

Dr. R. M. Howard, Oklahoma City: Exophthalmic goiter in children does not occur frequently but is occasionally seen. In 300 recent cases of exophthalmic goiter reviewed I have had to deal with but four cases. One was a white child aged 6 years, another was 11 years of age, another 16, and a Negro girl was 14. All had the typical symptoms of the disease of a rather severe degree. The percentage of cases seems small. Oklahoma City is rather out of the endemic goiter belt. In the presence of persistent or progressive exophthalmos following operation I have been almost helpless, not only in my efforts to offer relief but in being able to offer myself or my patients a satisfactory explanation for its occurrence. The work of Drs. Naffziger and Jones is interesting and if the cause of the condition, as brought out by them, proves to be the rule, a remedy for the more severe cases is available. Perhaps preserving the venous circulation in the neck may be of prophylactic value. The results of surgical treatment in exophthalmic goiter, while not entirely satisfactory, when compared with the results of other forms of treatment are so much better that little room for argument is left. Statistics such as those presented by Drs. Clute and Veal go far in confirming this view. However, all men doing goiter work have their cases with persistent symptoms, their recurrences, and their cases of hypothyroidism; the first two conditions require further operation and the last often requires continued administration of thyroid extract. The state of the patient in any of these conditions is not very satisfactory. Nor is the explanation of the occurrence of these unsatisfactory states always clear. The amount of gland left following operation is important. Complications existing in the gland itself, as well as the likely future demands to be made on the gland, must be carefully considered. The results of surgical treatment in exophthalmic goiter are not dependent alone on technical skill. Careful judgment acquired by experience is necessary in the care of these patients, not only in their preoperative preparation and during the operative procedure, but in their supervision for many months postoperatively.

Dr. Willard Bartlett, Jr., St. Louis: The results reported by Dr. Dinsmore and Drs. Clute and Veal constitute a mark to shoot at. In my opinion, the end-results of Drs. Clute and Veal are largely a reflection of the continued supervision of their patients, for recurrences are primarily the consequence of the patient's habits of life; these depend to a large extent on the group of persons with whom he lives. I am interested more in the ratio between preoperative and postoperative deaths in any given goiter service, as an index of the problem confronting the surgeon, than on operative mortality alone. From 1926 to 1930, 38 per cent of my goiter deaths occurred before operation and 62 per cent afterward. But during the past twelve months 84 per cent were preoperative and 16 per cent postoperative. This marked improvement following the previous study is due to one thing, better estimation of the patient's ability to withstand operation. The most valuable agent in bringing about this change has been development of the test of ability to hold the breath as a criterion of operability. A word on the paper of Drs. Naffziger and Jones: I have had four cases of recurring exophthalmos in the past five years. Two outstanding features in each of them were hypothyroidism and psychic shock. Early cases should be studied comprehensively, especially from a physic and metabolic standpoint, and treated accordingly. One man who had almost complete loss of vision in his right eye for one year improved slowly on thyroid feeding and now, after five years, has almost perfect vision and no exophthalmos. This was before a resource was available in the operation that Dr. Naffziger has devised. On the basis of that and a similar result obtained recently in which the intense edema around the orbit was apparently a part of the general edema of a marked myxedema, which responded promptly to thyroid, it is worth bearing in mind that if these patients can be got early and their exact status determined when exophthalmos appears, a certain group of them is going to be prevented from going over into the later stages with the persistent and unchangeable results in the orbit due to chronic lymphedema and fibrosis.

Dr. Frank H. Lahey, Boston: There are one or two points which I might make to stress what I have always said, and that is the need of leaving a considerable amount of thyroid tissue in children. All of these men who have spoken about thyroidectomy in children realize but have not stated the reason; namely, that the thyroid is so necessary for development that the penalty of myxedema in a child is much higher than in an adult. One should take myxedema very seriously even in adults. The complacency with which many men who are doing thyroid surgery face myxedema, I believe, is wrong. I feel strongly that the patients who have myxedema postoperatively are never quite the same psychically as those who have sufficient thyroid to meet the variable needs of thyroid secretion. As to the question of recurrent hyperthyroidism, I should like to present another practical point based on my experience of not infrequently leaving too much thyroid tissue. One cannot depend on palpation of thyroid remnants to demonstrate whether or not too much thyroid has been left. The thyroid remnants following subtotal thyroidectomy have a way of sinking into the groove between the esophagus and the trachea deep in the neck so that they are not readily palpable. Therefore, when one has clinical plus metabolic evidence of persistent hyperthyroidism, one does not need to be deterred from exploring the neck because one cannot find remnants, because in a great majority of instances when the neck is exposed one will find remnants of considerable size, the removal of which in the majority of cases will produce relief or cure. There is one warning further, and that is that a higher percentage of tetany must be anticipated, and a higher percentage of recurrent laryngeal paralysis in operations in persistent and recurrent hyperthyroidism. I should like to call attention to one other point. Since Catell and Mason in our clinic have proved that one can successfully transplant parathyroids, it becomes the obligation of every surgeon who is removing thyroids to search carefully for the parathyroids, and when they are found not to send them to the laboratory and be interested in examining them under the microscope, but to transplant them into the sternocleidomastoid muscle, where I feel certain they will take and often prevent postoperative tetany.

DR. HOWARD C. NAFFZIGER, San Francisco: Two have mentioned the fact that these patients have shown a normal or low basal metabolic rate. In all the cases reported in the literature, one finds that this is true. Most of them have received thyroid, but the exophthalmos has not been checked. It is possible, however, that in milder cases of progressive exophthalmos it might be helpful. I should like to impress on those who are doing thyroid surgery that it is desirable to secure extrinsic eye muscles from patients who die with exophthalmos from exophthalmic goiter. It is evident why there is so little opportunity to secure these after hearing the paper of Drs. Clute and Veal, the mortality is so low. It is desirable to determine whether these muscles are normal or large, whether they have edema, or whether they show any inflammatory change whatever. It is interesting to speculate on the cause of this inflammatory change in the muscles. In myasthenia gravis, similar changes have been reported in the extrinsic eye muscles. It might be recalled that enlargement of the thymus has been found in that disease. Enlargement of this gland has not been present in the cases of progressive exophthalmos that we have studied. The changes in the eye muscles are also similar to those in the heart muscle in thyroid disease; they are like the changes seen in the heart muscle in rheumatic fever, and they have points of similarity to the changes that are seen in the muscles in Volkmann's palsy and in the experimental instances of chronic venous obstruction. We are carrying on some experimental work in that connection. There have been instances of exophthalmos reported in rabbits, produced by performing a thyroidectomy and following it with thyroid feeding. This has not been confirmed as yet.

DR. R. S. DINSMORE, Cleveland: I am sorry that I did not mention anything about technic in the discussion. It is quite true, as Drs. Lahey and Guthrie have pointed out, that one must leave more thyroid tissue in these children. They are more prone to develop hypothyroidism after the operation, and I have made it a routine practice to leave, as Dr. Guthrie has stated, approximately twice the amount that I would leave in a similar case in an adult.

DR. HOWARD M. CLUTE, Boston: Dr. Guthrie inquired as to our plan of removal of foci of infection in exophthalmic goiter patients. It has been our feeling and our practice that the prime lesion which was upsetting these patients was their hyperplastic thyroid, and we have never had sufficient proof that the fundamental cause of hyperthyroidism was infection. We therefore undertake first the cure, as rapidly as possible, of their hyperthyroidism. Occasionally operations must be delayed because of some acute infection, which we feel is a serious contraindication to operation; but in nonacute infections we wait until the hyperthyroidism is controlled before we attack the infection. In past years we have been insistent that during the first year after operation the patient's activities should be distinctly limited. We have forbidden pregnancy, we have insisted that patients go to bed early at night and that they do not undertake any strenuous business or social efforts. In recent years we have become more lenient and we are coming to think that when we remove an adequate amount of hyperplastic tissue we cure the disease and that the patients are normal relatively soon after the procedure is over. It is not at all uncommon now for these patients to return to their full duty within certainly three months of the time of operation. The average drop in basal metabolic rate in our experience in the preoperative period of preparation is from 30 to 40 per cent, or even more. We do not depend on the drop in metabolism in deciding as to the time for subtotal thyroidectomy. Many patients who are mildly toxic, who are not severely ill, we operate on about the eighth or ninth day. In patients who are severely ill, regardless of their metabolism (and many of the sickest patients with the apathetic type of hyperthyroidism which Dr. Lahey has discussed will not have high basal metabolic rates), operative procedure must be delayed until we are clinically impressed with the fact that they are well able to stand operation. I think that the preoperative metabolism that is particularly significant is the one which does not come down but which goes up. The patient who after hospitalization and treatment with iodine and rest has an increasing metabolism and pulse rate and a falling body weight is a most serious risk. In these cases surgery must be delayed until improvement is evident or must be adopted as a last resort and with full recognition of its seriousness.

MILK IRRADIATED BY THE CARBON ARC LAMP

A CLINICAL AND LABORATORY STUDY OF RICKETS

A. F. HESS, M.D.
AND
J. M. LEWIS, M.D.
NEW YORK

In the course of the past five years we have reported our experiences, clinical as well as experimental, with various activated substances.[1] The first of these communications dealt with irradiated cholesterol, ergosterol, yeast and dried milk. Those which followed were concerned more particularly with the therapeutics of irradiated ergosterol (viosterol), with its dosage and standardization. Last year a somewhat different aspect was considered,[2] and a clinical test was reported of the milk of cows which had been fed irradiated yeast. Concurrently with these various clinical papers, communications have been made, in some instances in cooperation with other laboratories, dealing more particularly with laboratory or technical features. The most recent one, published in conjunction with Supplee and Dorcas, gave in detail the energy requirements for the antirachitic activation of irradiated milk[3] and showed the high degree of potency of activated dry milk. The present paper concerns itself more especially with clinical experiences with an irradiated fluid milk which has been activated under the most carefully controlled physical conditions.

---

1. Hess, A. F.; Lewis, J. M., and Rivkin, Helen: Clinical Experiments with Irradiated Ergosterol, J. A. M. A. **91:** 783 (Sept. 15) 1928; The Status of the Therapeutics of Irradiated Ergosterol, ibid. **93:** 661 (Aug. 31) 1929; Newer Aspects of the Therapeutics of Viosterol (Irradiated Ergosterol), ibid. **94:** 1885 (June 14) 1930.

2. Hess, A. F.; Lewis, J. M.; MacLeod, F. L., and Thomas, B. H.: Antirachitic Potency of the Milk of Cows Fed Irradiated Yeast or Ergosterol, J. A. M. A. **97:** 370 (Aug. 8) 1931.

3. Supplee, G. C.; Dorcas, M. J., and Hess, A. F.: Irradiated Milk: The Energy Requirements for Antirachitic Activation, J. Biol. Chem **94:** 745 (Jan.) 1932.

The subject of the antirachitic activation of milk by means of ultraviolet rays is no longer new. In March, 1925, it was reported: "Experiments which we have recently carried out would lead us to believe that milk can be activated, and that this property may be evident in infants, who, unlike rats, are not protected by a mere increase in the phosphorus in the dietary." [4] The year preceding, we had stated that small amounts of irradiated milk gave uncertain results in protecting rats from rickets. Since this time, clinical reports on milk treated in this manner have been numerous and ever increasing. The first, to our knowledge, was that of Cowell [5] in England; in this country, Kramer [6] published an early paper which recorded favorable results with this new therapeutic agent; in Germany, Scheer [7] has repeatedly drawn attention to the value of milk that has been irradiated by an apparatus that makes use of a special mercury vapor lamp; in fact, he introduced milk of this kind on a large scale in the city of Frankfurt. In Switzerland, Wieland [8] has urged the adoption of irradiated milk as a food for infants. It may be added that Daniels and her collaborators [9] have extended these clinical observations by demonstrating that an intake of irradiated milk is associated in infants, with exceptional retention of calcium and phosphorus.

From a technical point of view the irradiated milk that we fed, both fluid and dry, differed markedly from that which has been employed by others. In the first place, a carbon lamp of the flaming arc type was used for activation instead of a mercury vapor lamp, and furthermore the character and the amount of radiant energy were carefully controlled and measured. During a preliminary test of two years, milk had been subjected to a series of mercury vapor lamps, but this method was found to be undependable, owing largely to irregularities in the energy output of the lamps. The details in regard to the carbon arc lamps used for activating the milk that we tested this year will be found in the paper to which reference has been made.[3] These data may be summarized by the statement that a C carbon was employed and that a total of about three and a half million ergs, between 2,000 and 3,000 angstrom units, were applied per cubic centimeter of milk for a period of sixteen seconds. With a suitable quality and quantity of radiant energy, the antirachitic properties of milk can regularly be increased within a few seconds. The rate of vitamin D formation in milk and the quantum efficiency of the reaction are greatest during the very early stages of the process, and although up to certain limits the degree of antirachitic potency that can be imparted to milk bears a direct relationship to the amount of energy applied, beyond these limits additional energy does not increase the vitamin D content proportionately. The dried as well as the fluid milk contains approximately 50 rat units per liter. There is no possibility of elaborating a product of excessive potency by means of irradiation. According to Supplee and his collaborators,[10] the concentration of vitamin D in milk irradiated in this way is equivalent to about 0.0025 mg. per liter. Without going into the details of these calculations, it is clear that only by subjecting the milk to well controlled and definite amounts of radiant energy can one hope to elaborate a product of fairly constant antirachitic potency. It should be added that this milk suffered only an insignificant loss of vitamin A in the course of irradiation.

Our investigation was conducted under conditions very similar to those of last year when the so-called irradiated yeast milk was fed. In other words, the infants were about 1½ to 6 months of age, somewhat over 100 being selected from two baby health clinics of the department of health in New York. Thorough clinical examinations were carried out from time to time, the infants were weighed regularly thereafter, and frequent roentgenograms of the wrists were taken, for which we are indebted to Mr. Siegel of the Meinhard Memorial Health Center. Throughout the entire period, which extended from the beginning of January to the end of March, careful follow-up work was carried out by a full time nurse whom the commissioner of health assigned to assist in this study. The babies took about 24 to 32 ounces (750 to 1,000 cc.) of milk a day, which was supplemented by cereal and vegetables for the older group. A large number of the infants were Negroes, mostly Porto Ricans, a circumstance that rendered the test especially severe. In addition to these infants in the clinic, a smaller number were observed in the Home for Hebrew Infants, where they could be studied continuously under conditions that were susceptible of control and where observations could be checked by chemical analyses of the blood.

TABLE 1.—*Prevention of Infantile Rickets by Feeding Pasteurized Irradiated Milk*

				Physical Examination			Roentgenogram		
Name	Date	Age, Months	Weight, Pounds	Beading	Craniotabes	Bowing	Date	Result	Comment
R. N.	1/ 8	2	10⅘	±	++	++	3/14	Negative	Negro
	2/23	3½	13¾	+*	+++	++			
	3/25	4½	15¼	+	+++	++±			
J. M.	1/ 8	2½	10	+†	—	+	3/11	Spreading	
	2/23	4	11¼	+*	+	+			
	3/25	5	13	+	—	+			
G. C.	1/ 8	2½	10¼	±	+±	+	2/29	Negative	Porto Rican
	2/23	4	13	+	+±	+			
	3/25	5	15	+	+	+	3/18		
L. G.	1/ 8	5	17¼	±	+	+±	3/ 4	Negative	Porto Rican
	2/23	6½	19¼	+	—	++			
	3/25	7½	19½	+	—	++	3/24	Hypercalcification	Infection
M. H.	1/ 8	7	20	±	—	+	2/24	Negative	
	2/23	8½	22¼	+	—	+			
	3/25	9½	23¼	+	—	+	3/16	Spreading healed	
J. H.	1/ 8	4	12	+†	+	+	2/23	Negative	
	2/23	5½	14	+*	+	+			
	3/25	6½	16	+±*	—	+	3/15	Negative	
J. V.	1/ 8	5½	15	—	—	++	3/11	Negative	
	2/23	7	15¾	±	—	++			
	3/25	8	17	+	—	+±			
R. C.	1/ 8	4	14	+†	—	+±	1/13	Negative	Porto Rican
	2/23	5½	16	+*	—	+±			
	3/25	6½	16	+	—	+±	3/30	Negative	Grip
T. B.	1/ 8	5	11	+†	+	+	3/ 9	Spreading	
	2/23	6½	13	±	±	+			
	3/25	7½	15	±	—	+			
S. B.	1/ 8	5½	14	+†	—	+±	3/11	Negative	Negro
	3/29	8	17½	+	—	+			
M. C.	1/ 8	1½	9	±	—	+	3/15	Slight spread	
	2/23	3	11¼	+	—	+			
	3/25	4	.	+	—	++			
J. P.	1/ 8	7	16¾	±	—	+	3/ 9	Negative	Porto Rican
	2/23	8½	18¼	±	—	+			
	3/25	9½	18½	±	—	+			

---

[4] Hess, A F, and Weinstock, Mildred A Further Report on Imparting Antirachitic Properties to Inert Substances by Ultraviolet Irradiation, J Biol Chem **63**: 297 (March) 1925

[5] Cowell, S J Irradiation of Milk and the Healing of Rickets, Brit M J **1**: 594 (March 28) 1925

[6] Kramer, Benjamin Rickets in Infants, Am J Dis Child. **30**: 195 (Aug) 1925

[7] Scheer, K , and Rosenthal, P Die antirachitic Wirkung von in Kohlensäureatmosphare bestrahlter Milch, Ztschr. f Kinderh **44**: 235, 1927

[8] Wieland, E Aus der Bestrahlungstherapie der Rachitis, Monatschr. f. Kinderh **34**: 237, 1926

[9] Daniels, Amy L , Stearns, Genevieve, and Hutton, Mary K: Calcium and Phosphorus Metabolism in Artificially Fed Infants, Am. J. Dis Child **37**: 296 (Feb) 1929

[10] Supplee, G C , Hanford, Z M ; Dorcas, M J , and Beck, H H · Irradiated Milk· The Amount of Vitamin D and Its Rate of Formation, J. Biol. Chem **95**: 687 (March) 1932.

TABLE 1.—*Prevention of Infantile Rickets by Feeding Pasteurized Irradiated Milk—Continued*

				Physical Examination			Roentgenogram		
Name	Date	Age, Months	Weight, Pounds	Beading	Craniotabes	Bowing	Date	Result	Comment
L. O.	1/8	1½	11½	+†	+	+	1/13	Spreading	Porto Rican
	2/23	3	15½	+	++	+±	2/23	Spreading	
	3/25	4	17½	+	++	++	3/14	Spreading marked	
N. M.	1/8	2	10¾	+†	+	++	3/11	Slight spread	Porto Rican
	2/23	3½	12¾	±	+	++			
	3/25	4½	15¾	±	+	++			
J. M.	1/8	2½	11¼	±	±	+	3/14	Negative	
	2/23	4	14	±	±	+			
	3/25	5	15¾	+*	+	+			
N. O.	1/8	4	12	±	—	+	2/24	Negative	
	2/23	5½	13½	+	—	+			
	3/25	6½	14¼	+	—	+	3/9	Negative	
O. G.	1/8	1½	10½	±	—	+±	2/24	Negative	Porto Rican
	2/23	3	13½	+	+	+±	3/16	Negative	
	3/25	4	15¾	+*	±	+±			
K. W.	1/7	3½	15¼	±	+	++	3/10	Negative	
	2/27	5	17	+	+	++			
	3/26	6	18½	+	+	++			
H. V.	1/7	3½	13½	±*	+	+	3/8	Slight spread	
	3/27	5	16¼	+*	—	+			
	3/26	6	17	+*	—	+			
H. A.	1/7	2½	11	+†	+	++	3/18	Negative	Porto Rican
	3/2	4¼	13¼	+	—	++			
	3/26	5	14½	+	—	++			
A. M.	1/7	4½	13	±	—	+±	2/29	Negative	
	2/23	6	16	+	—	+±			
	3/23	7	17½	+	—	+±	3/15	Negative	
E. H.	1/7	4	11¼	±	+++	+±	3/8	Moderate	Negro
	3/8	6	14½	±	—	++		Marked healing	
	3/23	6½	14¾	±	—	++			
R. T.	1/7	5	15	±	—	+±	3/11	Negative	Negro
	2/27	6¾	17¼	±	—	+±			
	3/23	7¾	18¼	+	—	+			
M. D.	1/7	5	20½	±	—	+±	2/29	Negative	
	3/27	6½	23¼	+*	—	++			
	3/26	7½	24	+*	—	++	3/18	Negative	
I. B.	1/7	1¾	10	±	+	+	3/10	Negative	
	2/27	3½	13½	+	±	+			
	3/26	4½	14¾	±	—	+			
M. H.	1/7	1	7¾	—	+±	+	3/10	Negative	
	3/27	2½	12	—	+±	+±			
	3/26	3½	14½	—	+±	++			
H. K.	1/7	1½	10¾	±	—	+±	3/15	Negative	
	2/27	3	14½	+±	—	+±			
	3/23	4	15½	++	—	+±			
P. U.	1/11	1½	8¼	±	—	+	2/29	Mild; healing	
	2/27	3	11	+	++	+	3/11	Spreading	
	3/26	4	12¼	+	++	+			
S. M.	1/20	2	13½	—	—	++	3/9	Negative	
	2/27	3	16½	±	+±	+			
	3/23	4	18	±	+	+			
G. D.	1/18	6	18½	—	—	+	3/9	Negative	
	2/27	7	19½	+*	—	+			
	3/26	8	20	±	—	+			
H. B.	1/18	1	6½	±	—	+	3/9	Negative	Negro
	2/27	2	8	±	—	+			
	3/26	3	10	—	—	+			
E. H.	1/18	1	8¾	—	—	+	3/11	Negative	Negro
	2/27	2	11¼	—	—	+±			
	3/26	3	12	—	—	+			
A. V.	1/15	6	15¾	+†	—	++	1/15	Negative	Porto Rican
	3/2	7½	17	±	—	+±	3/24	Negative	
D. B.	1/7	4½	11½	+*	+	++	3/14	Negative	
	3/27	6¼	13¾	+	—	++			
	3/23	7¼	14¾	+	—	+±			
M. K.	1/21	1	17¼	±	—	+±	1/25	Negative	
	2/29	2	20¾	±	—	±±			
	4/13	3½	22¼	±	—	+			
R. A.	1/23	3½	....	±	—	+	1/25	Mild	Premature
	3/4	5	....	+±	—	+	2/22	Healing	
							4/9	Mild	
								Slight healing	

* "Angular beading," not "rounded beading."
† Almost + beading.

The results were clear cut, as was the case last year, and may be summarized in a few words. Of the thirty-six babies that presented no evidences of rickets in January, all but one remained free from roentgenologic signs of rickets. The essential data of these infants are presented in table 1. The sole exception was, as might be supposed, a premature baby. This infant was cared for in the Home and weighed but 4½ pounds (2 Kg.) at birth and 6 pounds 5 ounces (2.8 Kg.) when it was 2 months old and first given irradiated milk. It grew with remarkable rapidity, especially in length, measuring 19⁹⁄₁₀ inches (50 cm.) at 2 months of age, 22 inches (55 cm.) at 3 months, 23⁹⁄₁₀ inches (60 cm.) at 4 months and 25³⁄₁₀ inches (63 cm.) at 6 months. As has been repeatedly emphasized, premature babies must be regarded as a distinct group that cannot be prevented from developing rickets by any antirachitic therapy, except perhaps by the use of exceedingly large amounts of viosterol. In connection with this study, it should be added that, although rickets was regularly warded off from a roentgenologic point of view, the development of craniotabes could not always be prevented nor the formation of a "rosary" (beading of the ribs). It is our experience, however, that these two lesions come about in spite of all antirachitic therapy—breast feeding and liberal doses of cod liver oil or of viosterol. The beading that develops is, however, not of high degree and is often "angular" rather than "rounded" in character.

The other and larger series consisted of infants in whom evidences of rickets were found at the outset. We had not intended to carry out an extensive curative experiment, but on examining the entire group in January it developed that fourteen showed definite signs of rickets by the roentgen rays and that forty-eight others presented clinical evidences of rickets, although characteristic signs at the epiphyses were lacking. Our therapeutic results, reproduced in table 2, with the treatment of "roentgenographic rickets" will be observed to have been highly satisfactory. Definite signs of healing were brought about within a month or six weeks even in Negro babies. This is well demonstrated in the accompanying illustrations.

The results in the larger group, which had merely "clinical rickets," in contradistinction to "roentgenologic rickets," were equally gratifying. The data of these cases are not presented in tabular form for lack of space and because curative effects cannot be satisfactorily demonstrated except in relation to objective evidence such as the roentgenogram. The criteria of healing were recession or angulation of the beading of the ribs, diminution of craniotabes, or intensification of calcification of the epiphyses. Once more it should be stated that the advance of craniotabes often could not be stayed, which was found to hold true even when a fortified cod liver oil was given. It should be emphasized that we have reference to the eradication of roentgenologic rickets, of rickets of moderate and severe degree, and that there is a very mild form characterized by definite but minor clinical manifestations which cannot be prevented by any of these antirachitic measures. As has been pointed out from time to time,[11] it is the realization of this fact, which must be evident to all who have closely followed the incidence of rickets in the clinic, that leads us to believe that in the etiology of this disorder there is a factor quite apart from a lack of vitamin D, a factor which has not yet been fathomed. Pfaundler[12] has expressed a similar view.

---

[11] Hess, A. F., and Weinstock, Mildred: A Study of the Antirachitic Factor in Human and in Cow's Milk, Am. J. Dis. Child. **34**: 845 (Nov.) 1927.

[12] von Pfaundler, M.: Neueres über Rachitis, München. med. Wchnschr. **74**: 659 (April 22); 721 (April 29) 1927.

Our observations may be summarized by the simple statement that milk irradiated in this way proved to be highly satisfactory in the treatment of rickets both from a prophylactic and from a curative point of view. As will be understood, it is not possible to draw a reliable comparison between the efficacy of activated milk and that of the "yeast milk" which was used in a similar study a year ago. It is certain, however, that the activated product was at least as efficacious. A more extensive experience, particularly one in which the two types of therapy are carried out at the same time and under similar clinical conditions, will be necessary in order to enable a more exact comparison.

Table 2.—*Curative Effect of Pasteurized Irradiated Milk on Infants Manifesting Rickets by Roentgenogram*

				Physical Examination			Roentgenogram		
Name	Date	Age, Months	Weight, Pounds	Beading	Craniotabes	Bowing	Date	Rickets	Comment
E. H.	1/ 7	4½	13¼	+±	+	++	1/22	Moderate	
	2/23	6	14¾	+±	+±	++	2/23	Healing	
	3/23	7	16½	+±	+	+±	3/11	Marked healing	
							3/28	Healed	
J. B.	1/25	6	13	++±	++	++	1/25	Moderate	Porto Rican
	2/27	7	14½	++±	+±	++	3/ 2	Marked healing	
	3/26	8	15¼	++±*	—	++	3/15	Advanced healing	
							3/29	Advanced healing	
R. J.	1/ 8	3	14¾	+	±	++	1/17	Mild; healing?	
	2/23	4½	18½	+	++	++	2/23	Healed	
	3/22	5½	19¼	+	+	++	3/15	Healed	
G. M.	1/20	4½	13	+	++	+±	1/22	Moderate	Negro
	3/26	6½	14	±	—	+	2/23	Marked healing	
							3/23	Slight spreading	
C. H.	1/15	6	13½	++	—	++	1/17	Mild	Negro
	2/23	7	17	+	—	++	2/28	Marked healing	
	3/23	8	18½	+	—	++	3/18	Healed	
J. R.	1/20	7	16¾	+	—	+±	1/22	Rickets?	Porto Rican; grip, March 1
	2/23	8	17½	+±*	—	+±	2/23	Healing	
	3/28	9	17½	+±*	—	+±	3/18	Healed	
J. L.	1/ 8	3½	16¼	+±	+	++	1/18	Rickets?	Porto Rican
	2/23	5	19	+	++	++	2/25	Healing	
							3/25	Healed	
H. H.	1/ 8	3	8	+*	—	+	1/13	Rickets?	Porto Rican
	2/23	4	10	++	—	+	2/23	Healing	
							3/15	Healed	
R. K.	1/ 8	5	11	+	+	++	1/13	Mild; healing	
	2/23	6½	14½	+	—	++	2/23	Marked healing	
	3/23	7½	14¾	+*	—	++	3/18	Healed	
W. M.	1/11	2	11	+	+	+±	1/11	Rickets?	At first 18 ounces milk given; increased gradually to 32 ounces
							2/26	Healing	
	2/23	3½	14	+	+±	+±	3/18	Mild	
	3/26	4½	15	±	+±	++	4/ 1	Healing	
R. R.	1/11	5	14½	+	+	+±	1/11	Moderate; healing	Negro
	2/27	6½	16¼	+*	—	+±	2/26	Negative	
	3/23	7½	17½	+*	—	+±	3/15	Slight spreading	
J. A.	1/11	6½	15	+	+	++	1/15	Mild	Porto Rican
	2/27	8	17½	+	—	++	2/15	Healed	
	3/23	9	13¾	±	—	++±	3/18	Negative	
F. O'	1/11	4¼	16¼	+	+	+±	1/ 7	Mild; healing	Cod liver oil, 3 teaspoonfuls for two months prior to January
	2/27	6	17¼	+±	±	++	2/26	Healed	
	3/26	7	20	+	—	+±	3/21	Healed	
J. H.	1/21	13	18¾	++	—	....	1/21	Marked	1/20: Calcium, 9 mg., phosphorus, 2.7 mg.; 2/15: Calcium, 11 mg.; phosphorus, 6.3 mg.
	3/ 1	14	19½	++±	—	....	2/12	Healing	
							3/ 3	Healing marked	

* "Angular beading," not "rounded beading."

From the very introduction of irradiated ergosterol (viosterol) great confusion has been caused by uncertainties and difficulties in regard to the standardization of the product. In 1929 we expressed ourselves strongly against a standardization based on milligrams, in other words a gravimetric unit, and showed that a milligram of several preparations differed widely in strength. It was suggested that "the only way to make progress in the field so that irradiated ergosterol is rendered suitable for therapeutic use is to standardize preparations on the basis of animal tests."[1] Exception also has been taken to the method of expressing the potency of viosterol in terms of cod liver oil, because a method of this kind postulates that the activity of cod liver oil and viosterol is the same for infants as for rats. In 1930 we reported clinical observations which showed that an assumption of this kind did not accord with the facts and that much more viosterol was needed to protect infants than would be expected, judging by bioassays of the two antirachitic agents.[1] It was suggested, therefore, that instead of making use of cod liver oil as the basis of unitage it would be preferable to express the potency of viosterol directly in terms of rat units. The investigation carried out in the clinic last year[2] clearly showed that this method, although useful for standardizing various preparations of viosterol, led to erroneous results when applied to a comparison of viosterol with "yeast milk" or with irradiated milk. For example, the relative potencies, as expressed in rat units, of "yeast milk," of cod liver oil and of viosterol which were found to afford protection to infants was in the proportion of 1 : 1.25 : 5.2. These figures were based on giving a quart of "yeast milk," 3 teaspoonfuls of cod liver oil or 10 drops daily of viosterol, which, as far as can be judged, is preventive dosage of these three antirachitic agents; they represent approximately 160, 200 and 800 rat units. In other words, a smaller number of rat units of "yeast milk"—milk from cows that had been fed irradiated yeast—was required than of cod liver oil or of viosterol. At that time we did not wish to complicate the subject still further by raising the question of the position of irradiated milk in relation to unitage, contenting ourselves with a pre-

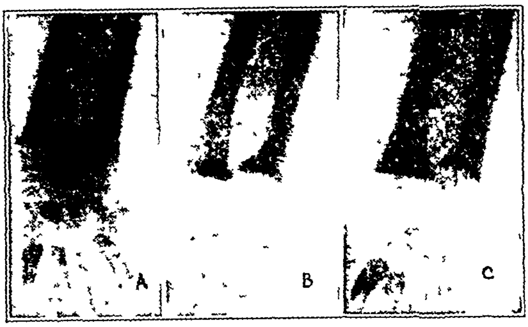


Fig 1.—Therapeutic results with irradiated dry milk *A*, Feb 9 (begun), *B*, March 3 (three weeks later), *C*, March 24 (three weeks later).

liminary statement to the effect that "irradiated milk is also exceptionally potent in regard to the number of rat units which it contains per liter." Our recent clinical and laboratory tests of milk activated by means of the carbon arc lamp, under controlled conditions, have strengthened the conviction that this product belongs in the category of yeast milk and cod liver oil rather than in that of viosterol. A quart, or even less, of this milk suffices to protect infants from rickets, notwithstanding the fact that this quantity contains only 50 units of vitamin D as assayed by the standard rat technic. Others have felt this discrepancy between laboratory standardization and the clinical results obtained with irradiated milk. Watson[13] attributes its effectiveness to the "vital" factor in activated milk, a certain something which is not measurable by the established laboratory tests. It is not possible, at the present time, to state in definite terms the nature of this distinction between various antirachitic agents. For the time being we must be satisfied with a realization of the existence of this peculiar biologic phenomenon, which is implicit with the inevitable conclusion that biologic assays, however valuable for a comparison of the potencies of antirachitic agents of the same kind, cannot be relied on in estimating the clinical value of antirachitic preparations as different as viosterol and irradiated milk.

Recently, Shelling and Asher[14] have expressed the opinion that it is "not reasonable" to assume that cod liver oil is more efficacious than viosterol in preventing infantile rickets. They base their conclusion on the fact that the antirachitic potency of these two therapeutic agents is comparable when tested on the rat. However, in view of the fact that the standard for viosterol is computed in terms of cod liver oil in one and the same animal, it is evident that this method of assay cannot be resorted to in determining whether these two agents vary in activity for infants. It is universally admitted that cod liver oil is definitely and notably more potent than viosterol in preventing leg-weakness in chickens. What we are interested in primarily is, of course, the action of these two substances in relation to the rickets of infants. In a report published about two years ago,[15] it was stated that to protect against or to cure infantile rickets about six times as much viosterol was required as cod liver oil. It may be added that subsequent experience has served only to fortify us in this conclusion. Such marked differences cannot be attributed to "different conditions of diet or environment." In the first place the environment of the infants in question was that of an institution and therefore eminently uniform. Secondly, the diet necessarily consisted either entirely or almost entirely of milk, which implies that, irrespective of dilution or formula, the Ca: P ratio was in all cases the same or almost the same. This holds true of the dietary of all infants about 3 or 6 months of age and is not disturbed significantly by the addition of the usual amounts of cereal or of vegetable. Moreover, the striking instance which we have cited of an infant which developed rickets, in spite of receiving twenty drops of viosterol daily, which is supposed to be *the equivalent of ten teaspoonfuls* of cod liver oil, but showed signs of healing after being given six teaspoonfuls of cod liver oil for a period of three weeks, is highly significant. Others have come to a similar conclusion in regard to the relative merits of these two valuable antirachitic agents. Shelling and Asher have demonstrated, however, that there is no distinction in antirachitic effect between cod liver oil and viosterol in the rickets induced in rats by means of a low phosphorus or a low calcium ration.

The number of antirachitic agents has grown so large that it would seem worth while to stop and pass them in review in an attempt to appraise their value in the prevention and cure of rickets throughout the community. The most outstanding are (1) irradiated milk, fluid and dry, (2) "yeast milk," (3) cod liver oil, (4) viosterol, (5) irradiated yeast, (6) direct ultraviolet irradiation, and concentrates and combinations of these products. It is evident that these various measures must differ not only in their specific virtue but also in their applicability according to whether one is considering individuals or a community, whether the community is rural or urban, and at all events according to the cost of the preparation.

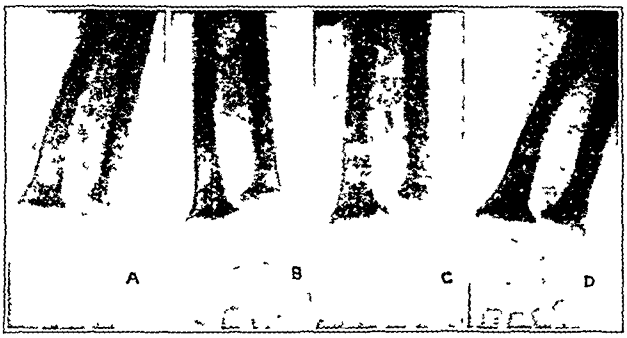


Fig. 2.—Therapeutic results with pasteurized irradiated fluid milk *A*, Jan 25 (begun), *B*, March 2 (five weeks later), *C*, March 15 (two weeks later), *D*, March 29 (two weeks later)

Beginning with a consideration of irradiated milk, it should be emphasized that this therapeutic agent has two inherent advantages. First, in that milk is the essential food for all infants, the indispensable and basal article of diet throughout the rachitic age, and furthermore in that, owing to its unequaled content of calcium and phosphorus, it is outstanding in connection with calcification. At the outset it should be mentioned that there does not seem to be any danger of giving excessive doses of any of these antirachitic preparations to the growing child. A series of recent biologic tests showed that 10,000 or 15,000 times the therapeutic dose of any of these five preparations could be fed to young rats without bringing about hypercalcemia; for this purpose, of course, concentrates had to be prepared. Irradiated milk also has the advantage of being inexpensive. It is estimated that the additional cost of the activated milk which we fed this year was but one twenty-fifth of a cent per quart.

---

[13] Watson, Chalmers: The "Vital" Factor in Diet A Theory of the Nature of Vitamins, Edinburgh M. J **38:** 91 (June) 1931

[14] Shelling, D H, and Asher, D E Bull Johns Hopkins Hosp. **50:** 344, 1932.

[15] Hess, A F.; Lewis, J M, and Rivkin, Helen Newer Aspects of the Therapeutics of Viosterol (Irradiated Ergosterol), J. A. M. A. **94:** 1885 (June 14) 1930.

It is probably true that the use of this therapeutic method does not provide a constant intake of vitamin D. It should be added, however, that assays of irradiated milk, carried out in the course of the winter, have not shown significant variations in potency. Inconstancy of supply is an outstanding characteristic of the vitamins, for example of the antiscorbutic factor, which varies largely according to individual caprice, according to the consumption of fruits and vegetables. In respect to the antirachitic factor, which is furnished in largest measure by the rays of the sun and varies greatly from hour to hour, season to season and locality to locality, our daily quota is eminently capricious. This criticism of the product is, therefore, quite irrelevant. Nor is there the slightest basis for believing that, in the course of "flash irradiation" by a carbon arc, any harmful products are elaborated. As a substitute measure, the addition of irradiated ergosterol to milk has been suggested. This method would involve the danger of error at the dairies in the course of adding the supplement, and, furthermore, presupposes that irradiated ergosterol is maintained in uniform solution throughout the milk. Moreover, as stated, it necessitates, on account of the comparatively low "efficacy factor" of irradiated ergosterol, giving several times the number of vitamin units required when irradiated milk is given. It should be borne in mind that the addition to a food of crystalline vitamin D, however pure, has yet to be shown to possess any advantage over a similar food which has been activated by short exposure to ultraviolet radiations.

On the other hand, there are definite limitations to the adoption of irradiated fluid milk. It is clear that it is adapted for use in cities and cannot be prepared for rural communities. According to the latest census, almost one fourth of the population of the United States, in other words, 36 millions, live in cities of over 100,000 population. It is to communities such as these that a product of this kind would seem to be limited. In a city such as New York, where approximately 500,000 quarts of grade A milk is used daily and where four fifths of the milk of this grade is pasteurized in the city, there is an especially favorable opportunity to combine pasteurization and irradiation of milk for babies and children. It may be added that dry milk, milk dried by the roller process, was found last year to be very effective in protecting against or curing rickets and that this product maintains its potency for a period of many months. Irradiation could well be extended to evaporated milk which is given to babies on a large scale in small and distant communities where the need of antirachitic therapy is not realized and its application would be difficult.

Milk obtained from cows that are receiving large quantities of irradiated yeast ("yeast milk") is likewise of value in the prevention of rickets. During the past year this measure has been used at certified farms in New York, Boston and Philadelphia and is about to be adopted elsewhere. It is a measure that is especially applicable to the certified farm where the ration of the cows is thoroughly controlled and one can be certain that a potent yeast is fed in proper amount and, more particularly, where frequent biologic assays of the milk can be carried out. Perhaps its application can be somewhat extended to grade A farms which provide a milk that is not certified and is much less expensive. It should be added that during the past winter we continued a certain number of infants in the baby health station on "yeast milk" for the second year and found that they thrived excellently, that none of them developed rickets in the course of the winter, and that the bones showed excellent calcification on roentgenologic examination.

Cod liver oil, like the antirachitic milk preparations, is reliable in preventing rickets excepting in its mildest form. It has been especially recommended on account of its high content of vitamin A, which by some has been termed and regarded as the "antiinfective vitamin." Without entering into a discussion of this subject, which has been considered elsewhere, it should be stated that this term is a misnomer, as neither vitamin A nor cod liver oil is able to prevent respiratory infections. Moreover, grade A and the better grades of milk contain from 1,000 to 2,000 vitamin A units per quart, which should be a sufficiency of this nutritional factor. Possibly cod liver oil contains some factor of which we are not yet cognizant—a possibility which has been referred to elsewhere but which cannot be stated more definitely as the result either of clinical observation or of laboratory test. The main disadvantage of cod liver oil, which has stood in the way of its general acceptance by mothers and children, is its disagreeable taste and odor.

The most potent of all antirachitics is viosterol. It should therefore be singled out for the cure of rickets and for its prevention in the premature infant, which often resists all other measures and is a disorder quite outside the ordinary category. Like cod liver oil, irradiated dry milk and viosterol are suited especially for the rural community in which irradiated milk or "yeast milk" is not applicable. Communities of this kind, containing less than 2,500 inhabitants, harbor 53 of the 122 million total population of the United States.

Irradiated yeast, which one of us recommended some five years ago,[16] has been used to only a small extent. Its disagreeable taste is most difficult to disguise. It is possible that this antirachitic agent or viosterol will be found suitable for nursing mothers in order to protect their infants from rickets and to prevent the withdrawal of lime from the bones, a reaction so commonly associated with lactation. However, if available, irradiated milk would be preferable for this purpose, owing to the fact that it provides an additional quota of calcium and phosphorus. In general the indirect rather than the direct method of therapy is preferable for nursing babies, because of the advantage to the mother as well as to the child. In the plan for the prevention of rickets, provision must be made for the nursing baby, for this disorder is by no means uncommon in the nursling. If mild "clinical rickets" is included, from one fourth to one third of all nursing infants manifest signs of this disorder.

Unless direct ultraviolet irradiation can be provided in an inexpensive and practical form combined with illumination, this method cannot be considered in the protection of the community at large from rickets. It is a valuable and effective measure and has value in the protection and cure of individuals, but at present it is limited in application owing to the fact that it requires the use of special apparatus.

---

[16] Hess, A. F.: Antirachitic Activity of Irradiated Cholesterol, Ergosterol and Allied Substances, J. A. M. A. 89: 337 (July 30) 1927.

We have confined ourselves in this discussion to the prevention of rickets in infants during the first and second years of life. It is becoming increasingly evident, however, that an antirachitic supplement is required throughout childhood, the period when there is not only marked growth in weight but in stature, in the growth and development of the bony skeleton. Whether antirachitic agents, such as activated food or ultraviolet radiation, are required for the best health and nutrition of the adult is a question which cannot be as yet satisfactorily answered.

There is another subject which, although somewhat afield, may well be mentioned in this connection; namely, the all important question of whether there is any cause for alarm in the rapidly increasing multiplication of foods which have been fortified with antirachitic vitamin. Antirachitic bread, vegetables and other foods have made their bow. It is true that the diet of children is lacking in this nutritional factor, but it may be asked whether this vitamin should be introduced at random and taken without medical advice and the knowledge or understanding of the parents. Incidentally, this raises the question, which we shall not discuss, of the desirability of adults partaking indiscriminately of foods rich in vitamin D. Besides the necessity for control of the potency of these products, which probably will be within therapeutic bounds unless some error occurs in the course of preparation, it may be questioned whether federal license and supervision should be required before such antirachitic foods are allowed to be marketed. This is a matter which is at present not under the jurisdiction of any bureau.

CONCLUSIONS

1. Pasteurized milk was activated by means of carbon arc rays, the radiant energy being carefully controlled and measured. It was found that sixteen seconds' exposure was sufficient to render the milk highly antirachitic.

A clinical test of this product in the prevention and cure of infantile rickets demonstrated that it is a highly effective antirachitic agent which can be relied on. Less than one quart daily sufficed to protect even Negro infants.

The great advantage of using activated milk, both fluid and dry, in the prophylaxis of rickets is that this measure furnishes an automatic method of therapy and likewise provides calcium and phosphorus.

2. Laboratory tests of this milk showed that it contained a comparatively small number of antirachitic units as judged by the standard rat assay. In view of the excellent clinical results, it is evident that the established method of assay cannot be relied on to appraise the value of irradiated milk for infants. This discrepancy in standardization was found also to hold true for tests of milk from cows which had been fed irradiated yeast ("yeast milk").

3. The indications for various antirachitic agents are discussed and appraised of (1) irradiated milk, fluid and dry, (2) "yeast milk," (3) cod liver oil, (4) viosterol, (5) irradiated yeast, (6) direct ultraviolet irradiation. Some of these measures are of value in the prevention and others for the cure of rickets, some for urban and others for rural communities. The use of irradiated fluid milk probably will be restricted to cities.

16 West Eighty-Sixth Street.

Clinical Notes, Suggestions and New Instruments

THE SAFETY NEEDLE

ROBERT J. LOWRIE, M.D., NEW YORK

During an operation the needle with which the surgeon sews may break, and even after a painstaking search the broken piece cannot always be recovered from the tissue. A needle may break in the most skilled hands. Nevertheless, the patient and relatives are not often ready to excuse the surgeon, and the latter may spend wakeful nights conjecturing what further trouble might be caused by the piece of steel left in the patient's body and whether he is to face a malpractice suit for alleged neglect.

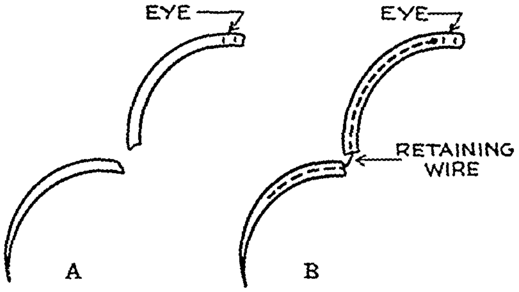


Fig. 1.—*A*, ordinary needle, broken; *B*, safety needle, broken.

Over a period of three years in the state of New York, there were at least fifteen claims brought against physicians because of fragments of broken needles being left behind after an operation. Even though the unfortunate physician is not "sued," his conscience bothers him and his reputation is liable to suffer.

In order to prevent the fragment of a broken needle from being lost in the tissue, I have designed a needle, which, if broken, controls or anchors the broken piece and so allows this to be readily and easily recovered from the tissue.

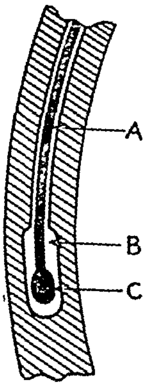


Fig. 2.—Enlarged section of safety needle, showing end of retaining wire in place: *A*, retaining wire; *B*, recess to allow play in retaining wire in case of bending or breaking of needle; *C*, enlarged end of retaining wire.

In figure 1 *A* is shown the ordinary surgical needle broken. The fragment with the point-end is completely detached and hence may "wander" afar in the flesh.

In figure 1 *B* is shown the safety needle broken, the fragments being held together by a retaining wire. The fine retaining wire *runs from the eye for not less than two* thirds of the length of the needle and is completely enclosed in a moisture-proof lumen or tunnel (fig. 2). Each end of the lumen is slightly enlarged to form a recess in which is confined the end of the wire, also enlarged by having its end turned back on itself. The retaining wire is not fastened to the walls of the lumen but may slide lengthwise for a distance of from 1 to 2 mm. This limitation of movement of the retaining wire is due to the inability of the enlarged ends to escape from the recesses into the lumen. Hence, when the needle breaks in the part containing the wire, the fragment of steel separates slightly (1 to 2 mm.) but is attached by the intact wire to the other part of the needle, which, of course, the surgeon controls.

A needle breaks at the point of greatest strain or leverage and this is usually where it is grasped by the needle holder.

On the first grasp, when the point of the needle is being forced through the tissue, the place of possible breakage is in the proximal half, usually a centimeter or two below the eye. If the break is below the surface of the tissue, the buried piece can be located by blunt dissection, the portion of the needle above the surface acting as a guide.

Occasionally when the needle holder is too close to, or right over, the eye, the break may be through the eye. As this is at the very end of the needle, only a tiny piece of metal is detached and quite often this can be located. But this type of break will not occur if the operator will keep the needle holder a half centimeter or so away from the eye.

The second grasp of the needle is in its distal third, near the point, when the other end of the suture is being drawn through the tissue. This portion of the needle does not contain the wire, but if the break occurs here the distal fragment is controlled by the needle holder and the proximal fragment is "tethered" to the suture. Therefore both fragments can be readily withdrawn from the tissue.

When the safety needle is used the following precautions should be observed:

1. The needle holder, when grasping the proximal end of the needle, should be at least 0.5 cm. away from the eye.
2. Make sure that the end of the short piece of suture is always at least 2 or 3 inches away from the eye, especially when the needle holder is on the point-end of the needle.
3. The needle holder should always be locked, especially when used on the point-end of the needle.
4. If the needle breaks, jerking, twisting or tugging should not be resorted to, but by blunt dissection, or cutting if necessary, the portion of the needle above the surface should be used as a guide to locate the buried fragment.
5. The safety needle should not be sterilized by boiling, but by immersion in alcohol, as in the case of scalpels and scissors.

Lumbar puncture needles and needles for giving clyses can have built in them the retaining wire, and so utilize the safety principle.

The safety device has thus far been employed in just one type of needle, the medium size, round needle. As time goes on the safety principle will be used in larger, or even smaller needles, either round or cutting.

In the early stages of development of the needle, I used for the "proving ground" a piece of tough beef, having deliberately broken several needles in order to note the usual point of breaking and also to get practice in recovering the fragment. Many of my colleagues have already used the safety needle and I have been using it for some time in my own private practice and in the ward cases.

The safety needle is identified by a small circle on the concave surface near the eye.

130 East Fifty-Sixth Street.

POISONING BY "EXLAX" TABLETS

Montague Cleeves, M.D., La Crescenta, Calif.

A healthy American boy, aged 10 years, ate the contents of a box of "Exlax" tablets in mistake for candy, March 26, 1932. He suffered severe purgation and his temperature rose to 106 F.; as household remedies failed to reduce this, the doctor was called the following evening. The only symptoms present were the temperature, 106, and a pulse of 130. The urine showed nothing abnormal. Fever persisted. On the 30th, a sudden eruption of huge wheals with sharply marked serpiginous borders appeared on the abdomen, legs and arms, disappearing the following day. Next day hemiplegia was apparent and the child became delirious. Multiple petechiae appeared on the abdomen and subcutaneous hemorrhages on the feet. A temperature of 103 persisted. Coma supervened, with gradual failure of respiration, and the child died at midnight, April 4, nine days after taking the "Exlax" tablets.

Necropsy showed a great number of hemorrhagic areas through the length of the intestine, varying in size from minute to several square centimeters, multiple minute hemorrhages in the kidneys, liver and brain substance, and marked congestion of the meninges (spinal puncture had shown a sterile lymphocytosis). The spleen was about four times the normal size and of mushy consistency, and was a very dark red. The heart walls showed multiple minute hemorrhagic areas and infarcts in the aortic valves (a few days before death a pronounced aortic murmur was audible); the suprarenal glands were almost liquefied.

The picture was one of a general destruction of the endothelium of the blood vessels, and the question arises whether a transfusion of blood might have been efficacious.

The active factor in "Exlax" is stated to be phenolphthalein. The literature reports occasional misadventures.[1]

5347 North Briggs Avenue.

INHALATION OF CARBON DIOXIDE IN THE PAROXYSMAL STAGE OF PERTUSSIS

Yandell Henderson, Ph.D., New Haven, Conn.
From the Laboratory of Applied Physiology, Yale University.

Inhalation of carbon dioxide, diluted in air or oxygen, is now established as an effective means of overcoming atelectasis and preventing pneumonia in the new-born, as well as for the reinflation of the lungs and prevention of pulmonary complications after anesthesia.

It seemed promising, therefore, to try a similar treatment in the paroxysmal stage of whooping cough. The object in this case is, however, not merely to forestall the risk of pneumonia but also to diminish the intensity and abbreviate the duration of the paroxysmal period. Pneumonia after pertussis probably comes from the obstruction of bronchi or bronchioles by mucus (Coryllos). The cough and whoop are due to irritation by adherent particles of mucus. Clearing the lungs by deep breathing should not only prevent pneumonia but also have the immediate advantage of diminishing the paroxysms of coughing. The object of this inhalation is, then, to keep the lungs sufficiently clear so that the paroxysms may be appreciably diminished in frequency and in intensity.

Experience shows that the inhalation of from 6 to 7 per cent carbon dioxide does not itself precipitate a paroxysm, as might perhaps have been expected. In some cases in which the child is uncooperative or resentful of any handling, a paroxysms may develop at the moment that the mask or hood is placed over the face. In these cases it is best, and indeed necessary, to delay the inhalation until that paroxysm is past; then it is recommenced and generally goes smoothly. The period of inhalation has been from ten to fifteen minutes either once or twice a day, preferably before a meal, or at least two hours after the last meal. The pulse is not considerably accelerated and breathing does not exceed that of a healthy child after a moderate amount of exercise. It is the depth rather than the rate that is increased. In this treatment, as in all uses of carbon dioxide, the percentage of the gas in the air, or oxygen, inhaled should be below the amount that would increase the rate of breathing or cause anxiety or strain in the patient. Under higher concentrations the depth of breathing may even decrease. Between 6 and 7 per cent mixed with air, or a mixture of 7 per cent carbon dioxide and 93 per cent oxygen, has been found to fulfil the requirements.

In some cases the mixture of carbon dioxide in oxygen has been administered by means of a mask and rubber bag. For this purpose the inhalator now commonly used by rescue crews for the treatment of cases of carbon monoxide poisoning is most convenient. Any one of the standard anesthesia machines affords the same conditions for the patient but they are more expensive. The portable infant inhalator now widely used for the resuscitation of the new-born from asphyxia or persistent atelectasis has also been found to be well adapted for this purpose.

In other cases, especially for children who objected to the mask, a small tent has been used having a capacity of about one cubic foot. Into the top of this tent a stream of carbon dioxide mixed with air is delivered through an injector. The gas comes from a cylinder of pure carbon dioxide to which are attached a reducing valve, a finely adjustable needle valve, and a manometer that blows off at a pressure of 8 inches water gage, this blow off preventing the possibility of excess. The injector in the top of the tent is adjustable to give a concentration of from 4 to 8 per cent carbon dioxide and a flow of more than 20 liters of the air and carbon dioxide mixture into the tent each minute This apparatus has been left in the home and used by the child's mother or nurse The cost of the gas is much less than when a mixture of carbon dioxide and oxygen is used, and the effects on the patient appear to be the same

---

[1] Phenolphthalein Poisoning with Analax Tablets, J. A. M. A. **98**: 340 (Jan. 23) 1932. McCarthy, F. P.: Dermatitis Medicamentosa (Phenolphthalein), Arch. Dermat. & Syph. **25**: 1142 (June) 1932.

This treatment has now been applied to ten children, ranging in ages from 9 months to 7 years All of them were suffering from frequent and distressing paroxysms of coughing In all cases after the third or fourth day of inhalation the paroxysms were considerably lessened in severity and frequency By the end of the eighth day coughing had become so infrequent that the inhalations were then discontinued

4 Hillhouse Avenue

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

RAYMOND HERTWIG, Secretary

SCHULZ PAN DANDY BREAD
SCHULZ BAMBY BREAD (SLICED AND UNSLICED)

Manufacturer—Schulz Baking Company, Pottstown, Pa

Description—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p 817), prepared from patent flour, water, malt extract, yeast, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride, and potassium bromate, salt, sucrose, hydrogenated shortening and dry skim milk

Analysis (submitted by manufacturer)—

	per cent
Moisture (entire loaf)	34 2
Ash	1 7
Fat (ether extraction method)	0 8
Protein (N × 6 25)	10 3
Crude fiber	0 3
Carbohydrates other than crude fiber (by difference)	52 7

Calories—2 6 per gram 74 per ounce

Claims of Manufacturer—A bread of good quality

COMET BROWN RICE FLAKES
Flaked Genuine Brown Rice

(Flavored with malt, sugar and salt)

Manufacturer—Comet Rice Company, New York

Description—A flaked cooked and toasted brown rice containing added malt syrup, salt and sugar

Manufacture—Cleaned whole brown rice, malt syrup, salt and sugar are cooked under steam pressure for one hour in a revolving sealed cooker The cooked material is partially dried, flaked between steel rolls, toasted and packed in paper cartons

Analysis (submitted by manufacturer)—

	per cent
Moisture	4 4
Ash	2 5
Fat (ether extract)	0 9
Protein (N × 6 25)	8 4
Crude fiber	0 8
Carbohydrates other than crude fiber (by difference)	83 0

Calories—3 7 per gram, 105 per ounce

Claims of Manufacturer—A ready to eat brown rice cereal.

HARDY'S TWIN LOAF BREAD

Manufacturer—Hardy Baking Company, Flint, Mich

Description—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p 817) prepared from patent flour, water, yeast, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, salt, dextrose, lard, partially hydrolyzed starch and a mixture of calcium acid phosphate and calcium peroxide

Analysis (submitted by manufacturer)—

	per cent
Moisture (entire loaf)	36 8
Ash	0 6
Fat	1 2
Protein (N × 6 25)	8 4
Crude fiber	0 2
Carbohydrates other than crude fiber (by difference)	52 8

Calories—2 6 per gram, 74 per ounce

Claims of Manufacturer—A bread of good quality

REPORTS OF THE COMMITTEE

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

RAYMOND HERTWIG, Secretary

CONDAY (GRAPE AND RASPBERRY FLAVORS)
Makes a Delicious Spread, Use in Place of Old Fashioned Jelly
NOT ACCEPTABLE

Thomson & Taylor Company of Chicago submitted to the Committee on Foods two products called Conday Grape Flavor" and 'Conday Raspberry Flavor ' The grape flavor product contains water, fruit pectin tartaric acid natural grape flavor, grape juice, potassium bicarbonate, dextrose, sucrose and artificial food color certified by the United States Department of Agriculture The raspberry flavor product is of essentially the same composition excepting that concentrated raspberry juice and natural raspberry flavor are the flavoring ingredients

Analysis (submitted by manufacturer)—

(Grape flavored)

	per cent
Moisture	91 2
Ash	0 3
Fat (ether extract)	0 2
Protein (N × 6 25)	0 2
Crude fiber	0 0
Pectin	1 9
*Dextrose (polarization method)	2 1
*Invert sugar (polarization method)	3 5

(Raspberry flavored)

Moisture	92 5
Ash	0 3
Fat (ether extract)	0 1
Protein (N × 6 25)	0 1
Crude fiber	0 0
Pectin	1 7
*Invert sugar (polarization method)	1 8
*Dextrose (polarization method)	1 2

* C A Browne, Sugar Analysis (1912)

Discussion of Label—A cursory reading of the label gives the impression that the article itself is the "delicious spread' mentioned Only after reading the rear label panel is the fact disclosed that a large quantity of sugar must be added and the "spread" prepared according to certain directions The prominent statement "Contains only pure fruit products" incorrectly implies that all the ingredients are derived from fruit This statement in conjunction with the facsimile of fruits including grapes, oranges, lemons and an unidentified fruit suggests the presence of the whole juice of the fruits, which is not correct The potassium bicarbonate, sucrose and dextrose ingredients are not derived from fruits The unqualified prominent statement "Use in place of old fashioned jelly" creates the unwarranted and misleading impression that the article is closely similar to what is popularly recognized as "old fashioned jelly "

In accordance with its published Rules and Regulations, the Committee recommended to the manufacturer that a descriptive statement naming the ingredients of the product be placed in proximity to the trade name Conday on the label and in advertising, the intent of the statement being to identify the article and to prevent possible deception or false implication that the product or the "spread" made from it is "true jelly" a generally recognized "all-fruit-juice sugar preparation"

The manufacturer was informed of the opinion and recommendations of t[illegible]Committee but has shown no indications of complying wit[illegible] the Committee's recommendations These products, therefore, cannot be listed among the Committee's "accepted" foods

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, AUGUST 20, 1932

CRYSTALLIZED FILTRABLE VIRUS

Possibly the reported successful crystallization of the etiologic factor of mosaic disease of tobacco may be regarded by future medical historians as one of the most important advances in infectious theory since the work of Lister and Pasteur. The announcement of the isolation of a crystallizable pathogenic enzyme necessarily throws doubt on the conception that poliomyelitis, smallpox and numerous other "ultramicroscopic infections" are of microbic causation. The apparent evidence that a specific protein, which in itself is incapable of self multiplication, may function as a disease germ when placed in "symbiosis" with normal cells seems to furnish experimental confirmation of several highly speculative theories relating to vitamins, hormones and progressive tissue degenerations.

The enzymic theory of the etiology of tobacco mosaic disease was suggested by Dr. A. F. Woods[1] more than thirty years ago. Since then the enzyme concept has remained the dominant working hypothesis in the experimental pathology of this and certain other plant diseases.

Subsequent extraction and preservation of the mosaic infectious agent by means of glycerin, the demonstration of its resistance to phenol, heat and ultraviolet rays, its precipitation by alcohol, acetone and other protein precipitants, its adsorption and subsequent elution from talc, and its partial isolation by electrodialysis have all been consistent with but not proof of its assumed enzyme character. Ten years ago, measurements of the diameter of this infectious colloid led Duggar and Armstrong[2] to the conclusion that each pathogenic unit is of the approximate size of a hemoglobin molecule. This is an order of magnitude similar to that subsequently demonstrated for "bacteriophage" and for numerous known plant and animal enzymes.

Recent studies of the hydrolytic products of this infectious colloid by Dr. C. G. Vinson and his co-workers[3] of the Boyce Thompson Institute for Plant Research, Yonkers, N. Y., have confirmed these observations and have led to the belief that the active component of the mosaic protein is a relatively simple atomic group, of which the infectious protein as a whole is a presumably necessary but relatively inert colloidal "carrier." This concept is in harmony with the accepted theory of known enzymes. From their relatively pure acetone precipitates from mosaic juice the New York plant pathologists finally succeeded in obtaining colloidal crystals, which were uniform in appearance and moderately infectious. They retained much of their infectivity on recrystallization. This decreased infective potential is in line with the progressively decreasing hydrolytic potential on recrystallization of known enzymes.

The essential problem before plant pathologists today is a determination of the ways in which such a pathogenic enzyme can initiate progressive enzymic perversion in living cells giving the appearance of enzymic self proliferation. This is similar to the essential problem of the new colloidal theory of "bacteriophage" and of numerous alleged "type transformations" in associated micro-organisms. An analogous problem is shown in the postulated quasiproliferating "pathogenic hormones" in certain progressive parenchymatous degenerations. These and numerous similar problems have already stimulated the speculative interest of biochemists. By a proper juggling with known chemical facts, Alexander[4] finds it logical to picture engrafted enzymic colloids functioning as "induced" or "modified genes" in "symbiosis" with living cells. The quasiproliferating "genetic perversion" causes atypical morphology and altered physiologic function. In extreme cases it may lead to the death of the perverted cell or of the multicellular host.

Clinicians must be prepared for the future endorsement of such metaphysical fantasies by medical investigators with the serious advocacy of their acceptability as working hypotheses in practical medicine.

PROTEINURIA IN YOUNG WOMEN

The appearance of protein in the urine of apparently healthy young persons has been the subject of much study and considerable conjecture. The Journal[1] has pointed out the importance of investigations of this problem from the point of view of the possible early recognition of renal disorder. The incidence of benign, non-nephritic, orthostatic, lordotic or postural albuminurias is about 5 per cent. This figure applies to young men only, and it varies somewhat depending on the method used in testing the urine. Among the etiologic factors involved in these cases of "physiologic proteinuria" it is well known that circulatory conditions are important. Thus, during strenuous exercise, which is known to provoke or aggravate proteinuria, the blood is largely diverted to the muscles and the skin. The kidney secretes little urine, which may contain albumin as the result, presumably, of local anoxemia rendering the glomerular endothelium permeable to the plasma proteins.

---

[1] Woods, A. F.: Centralbl. f. Bact. **5:** 745, 1899.

[2] Duggar, B. M., and Armstrong, J. K.: Ann. Missouri Botan. Gard. **10:** 191, 1923.

[3] Vinson, C. G., and others: Contributions from Boyce Thompson Institute **3:** 131, 147, 1931; Botan. Gaz. **87:** 14, 1929.

[4] Alexander, Jerome: Protoplasma **14:** 296, 1931.

[1] Albuminuria in Young Men, editorial, J. A. M. A. **98:** 1470 (April 23) 1932.

Hellebrandt and her collaborators[2] at the University of Wisconsin have studied the relation of exercise to the excretion of protein by healthy young women. The subjects were physical education students and instructors ranging from 18 to 30 years of age. In forty-seven cases, seven, or 14.8 per cent, showed albuminuria. The urine samples were tested either with heat and acetic acid or with sulphosalicylic acid. Because these reactions are apparently more sensitive than the nitric acid ring test, it is probable that the demonstrated incidence of proteinuria in young women is about the same as that found by previous workers for men. Of the forty subjects whose urine was protein free, twenty-three, or somewhat over 50 per cent, showed some albuminuria after exercising in the gymnasium. A special study was therefore made in an attempt to correlate the effect of exercise on pulse pressure and on the presence or absence of protein in the urine. After riding the bicycle ergometer for thirty minutes, six subjects out of fourteen showed albuminuria. The average blood pressure of this group fell after exercise to 21 mm. below the preexercise level and did not return to normal until after seventy-two minutes. The eight subjects whose urine remained protein free showed a less marked drop in blood pressure, or 11 mm., and a return to normal in fifty-one minutes. Thus, the authors believe that the possibility of a sluggish circulation after exercise augments the local asphyxia of the kidney and contributes to the renal excretion of protein. Albuminuria was produced in those subjects who exhibited an excessive peripheral dilatation during exercise, as evidenced by flushing and sweating, and a deep and protracted fall in blood pressure after the cessation of exercise.

Further experiments indicate an interesting relationship between the speed of performing vigorous work and the quantitative excretion of protein. By means of a specially constructed bicycle ergometer with an electrodynamic brake it was possible to perform identical amounts of absolute work in a given length of time at speeds that could be varied within wide limits. Pedaling at the rate of 65 revolutions per minute and doing exhausting work for five minutes, five subjects eliminated an average of 4 mg. of protein per hundred cubic centimeters of urine. This is an almost protein-free secretion. Increasing the speed to 95 revolutions but maintaining the amount of external work constant in the same time period, these subjects showed an average excretion of 73 mg. of protein per hundred cubic centimeters of urine. The blood pressure rise during exercise and fall after its completion was nearly identical in the two experiments; hence it was not the important factor involved in the development of this proteinuria. It is known, however, that the amount of energy required to perform rapid work is more than for slower work, because of the increased frictional loss in the muscles, and the oxygen requirements are higher. The authors believe that their results may be explained on the hypothesis that violent exercise involving rapid movements brings about a generalized systemic increase in acidity. Should this condition alter the permeability of the glomeruli, protein might appear in the urine.

These experiments thus afford additional data relating the circulation with kidney function, and they offer interesting possibilities for future study. Though the significance of albuminuria in young adults still remains obscure, the contribution of the Wisconsin physiologists further elucidates some of the factors involved.

THE PREPOTENT FUNCTION OF THE SUPRARENALS

The great interest that has developed in the function of the suprarenal structures is thoroughly justified. The discovery of the indispensability of the suprarenals for life was, of itself, sufficient to promote the study of "these hitherto mysterious bodies." The demonstration that the cortex of the suprarenals is the part that has dominant importance for the body has diverted much of the investigation in this field away from the medullary part of the glands, which only a few years ago yielded the potent hormone epinephrine to science. Indications of the possibility of replacement therapy by means of suitable cortical extracts have acted as additional spurs to the laboratory workers in this field of endocrinology. To cap the climax, the growing evidences of the possible value of the cortical hormone in the management of that heretofore discouraging condition, Addison's disease, has awakened even the clinicians to the necessity of a vigorous study of suprarenal functions from every angle.

There is, indeed, danger that the pendulum of enthusiasm may momentarily swing too far in one direction, as so often happens when new discoveries are made. This is intimated in a recent paper in The Journal,[1] in which the following statements appeared:

> A limited amount of additional information has been gained during the eighty years since Addison first published his description of the disease which now bears his name, despite the production of a vast literature. One of the significant things, now apparently established, is that the essential patho-

---

[2] Hellebrandt, Frances A: Studies on Albuminuria Following Exercise: I. Its Incidence in Women and Its Relationship to the Negative Phase in Pulse Pressure, Am. J. Physiol. **101**: 357 (July) 1932. Hellebrandt, Frances A.; Brogdon, Elizabeth, and Kelso, L. E. A.: II. Its Relationship to the Speed of Doing Work, Am. J. Physiol. **101**: 365 (July) 1932.

[1] Harrop, G. A, Jr., and Weinstein, Albert: Addison's Disease Treated with Suprarenal Cortical Hormone (Swingle-Pfiffner), J. A. M. A. **98**: 1525 (April 30) 1932.

logic process in the disease lies in the cortical portion of the suprarenal gland and not in the medulla It is by no means proved, however, that direct or indirect impairment of function in the medulla is not responsible for certain of the characteristic clinical phenomena, particularly the pigmentation, the hypotension and the disturbance of sugar metabolism The predominant rôle of tuberculosis as the etiologic factor in about 80 per cent of the cases, and of a peculiar atrophy of the glands in nearly all the remainder, has also been established Finally, the remarkable tendency of the clinical course of the disease to remissions and relapses is now clearly evident

In reviewing the recent progress, Britton[2] has remarked that the development of a potent organ extract invariably signalizes an outburst of experimental work in the pertinent field, which is perhaps fortunate. Hope is thus engendered that suprarenal physiology may soon be stripped of much of its hazy theory and form a well founded part of the endocrinologic scheme The most recent contributions from Britton's laboratory[3] at the University of Virginia direct attention anew to the probable relations of suprarenals to carbohydrate metabolism The augmentation of blood urea, often referred to in cases of suprarenal deficiency, is not believed by the Virginia physiologists to be of primary significance but rather the expression of effects indirect or secondary to more fundamental changes Among these are the progressively severe reductions in the sugar content of the blood, and in liver and muscle glycogen stores, in animals deprived of their suprarenals Hence Britton and Silvette believe that the cortex is indispensably important in maintaining, in cooperation with other organs, the normal metabolism of carbohydrates in the body. The evidence indicates that this represents the principal function of the corticosuprarenal tissues The results appear significant, they add, in view of the severe myasthenic condition found in Addison's disease, and also in relation to the recently observed effects of corticosuprarenal extract in stimulating energy output. Administration of corticosuprarenal extract brings about recovery of animals which are in the terminal stages of insufficiency, apparently through initial restoration of normal carbohydrate values Increments in circulating sugar to the normal or even to hyperglycemic levels occur early after injection of the extract and are invariably associated with the disappearance of symptoms of insufficiency There are also correlated and striking *increases in liver glycogen* These conditions appear to be of primary importance in effecting recovery. Restoration is completed with the reestablishment of muscle glycogen values and the diminution of lactic acid in the blood That is why Britton and Silvette venture the conclusion that the cortical tissues and their hormones are primarily concerned (in conjunction admittedly with other secretions) in the maintenance of normal dextrose and glycogen levels in the body Since the cortex represents that part of the organs which is preeminently essential to life, the conclusion is derived that the regulation of carbohydrate metabolism may be considered as the prepotent function of the suprarenal glands

---

[2] Britton, S W Adrenal Insufficiency and Related Considerations, Physiol Rev **10:**617 (Oct) 1930

[3] Britton, S W, and Silvette, H The Apparent Prepotent Function of the Adrenal Glands, Am J Physiol **100:**701 (May) 1932

VITAMIN C—THE ANTISCORBUTIC VITAMIN

Ever since the discovery of the existence of vitamins as heretofore unrecognized dietary essentials, serious attention has been directed toward ascertaining the precise chemical nature of these indispensable food factors For a long time our knowledge was confined to an appreciation of the indisputable fact that many natural foods exhibit vitamin potencies and that the latter can be concentrated to a noteworthy extent by suitable biochemical procedures One outcome of such investigations has been the development of useful *vitamin concentrates of various sorts* It has become well established that the known vitamins cannot be produced de novo by the animal organism The latter is dependent, in ultimate analysis, on plants for the genesis of vitamins. Bacteria also apparently have some capacity to synthesize some of them In all these studies the research worker has been compelled to rely on tests with animals to ascertain the existence and potency of vitamins in the products studied, for the chemical structure of the effective agents remained unknown and consequently they could not be assayed by the method conventionally employed with most physiologically active substances of recognized make-up

Of late, progress toward the isolation and identification of some of the vitamins has been greatly accelerated[1] The discovery that the irradiation of a known substance, ergosterol, leads to the production of vitamin D, the antirachitic factor, was followed by the preparation of crystalline vitamin D Another significant discovery was the determination that one of nature's common yellow pigments, carotene, can serve as a precursor of vitamin A in the body Within the past year have come reports of the isolation or identification of vitamins A, B and C by Karrer or Drummond, Windaus and Rygh, respectively

According to Rygh and his co-workers,[2] the antiscorbutic vitamin can be produced from the long known alkaloid narcotine and is presumably so derived in nature. Unfortunately, the experimental results and conclusions of these Scandinavian investigators have failed of confirmation by a number of scientific workers both here and abroad.[3] Better success seems, however, to have attended the efforts of King and his associates[4] at the University of Pittsburgh. They venture to identify vitamin C with the hexuronic acid found by Szent-Györgyi in various plant tissues and in the suprarenal structures, as recently discussed in The Journal.[5] The Pittsburgh biochemists have isolated from orange juice a crystalline product that is protective to the conventional laboratory test animal, the guinea-pig, in daily doses of 0.5 mg. The details of the laborious undertaking need not be rehearsed here. If the claims are further substantiated, as now seems likely, a great step in advance will have been taken. In any event, further specific knowledge regarding the precise etiology and cure of scurvy cannot fail to result from these trends in research.

---

[1] Mendel L B Vitamin A J A M A **98:**1981 (June 4) 1932 Eusterman, G B, and Wilbur, D L Clinical Features of Vitamin A Deficiency, ibid **98:**2054 (June 11) 1932 Kruse H D, and McCollum, E V Review of Recent Studies on the Antineuritic Vitamin, ibid **98:**2201 (June 18) 1932 Cowgill, G R Vitamin B_1 in Relation to the Clinic, ibid **98:**2282 (June 25) 1932 Sure Barnett The Present Status of Vitamin B_1 (G), ibid **99:**26 (July 2) 1932 Underhill F P Clinical Aspects of Vitamin G Deficiency, ibid **99:**120 (July 9) 1932 *Clouse, Ruth C Vitamin D, ibid* **99:**215 *(July 16), 301 (July 23)* 1932 Schlutz, F W The Clinical Significance of Vitamin D in Infancy and Childhood, ibid **99:**384 (July 30) 1932 Evans, H M Vitamin E, ibid **99:**469 (Aug 6) 1932 Harris, L J, in Annual Review of Biochemistry Stanford University Press **1:**337, 1932.

[2] Rygh, Ottar Rygh, Aagot, and Laland, Per Ztschr. f physiol. Chem **204:**105 (Jan 5) 1932

Current Comment

THE MEDICAL HISTORY OF SIR WALTER SCOTT

In recognition of the centenary of the death of Sir Walter Scott, famous as a master of graphic description, the *Edinburgh Medical Journal* recently issued a Scott centenary number. The issue includes several articles dealing with the medical aspects of the life of this famous novelist. Dr. Robert Hutchison[1] points out that Scott was one of twelve children, the first six of whom died in infancy, in that day not an uncommon occurrence, for dysentery and infection were frequent. Indeed, Walter Scott himself was being nursed by a tuberculous nurse, who chose to conceal the fact. She went privately to consult Dr. Black, professor of chemistry, who at once notified the father of Scott, so that the woman was dismissed and the infant consigned to a healthy peasant. When the child was 18 months old he suffered for three days with a fever which was thought to be the result of cutting large teeth. On the fourth day, when his nurse was about to bathe him, it was discovered that he had lost the power of his right leg. Many physicians were consulted without success; then the parents, eagerly grasping at every prospect of cure, tried every remedy suggested by any one. The condition was no doubt an attack of poliomyelitis, which left Scott lame for life. After all other remedies had failed, the child was sent to the country to live. There his general health improved greatly, although his affected limb was "much shrunk and contracted." Until the boy grew up, he was the subject of innumerable attempts to heal the paralyzed limb. Among others, the notorious charlatan Dr. James Graham, who has been described as the emperor of quacks, was called into the case, but his magnetic methods were of no avail. Scott triumphed over his paralysis by sheer grit and determination. Eventually, in spite of his limp, he could walk 30 miles a day and ride 100. At about 14 years of age he suffered from hemorrhages of the bowels, which unfortunately no one has been able to explain. At about 36 years of age he had an attack of gout and then at 46 repeated attacks of gallstone colic. Scott is described as a gargantuan eater. During the winter months he got little exercise and dined out much. His gallstone colic was treated with hot salt packs, profuse venesection and counterirritation. He says, "They bled and blistered till they left me neither skin nor blood." In fact, he describes his gallstone colic as "the cramp setting a fire to its lodging." After several years the attacks increased in their severity, being treated with large doses of laudanum, calomel and ipecac.[2] The writer was compelled to renounce beer and ale and also pastry, fruit and all that tends to acidity. In one attack lasting six hours he took 6 grains of opium, 3 of scopolamine and nearly 200 drops of laudanum. He also tried innumerable quack remedies without success. Finally, after a terrific dose of calomel, he seemed to recover from the acute condition and thereafter was troubled only with occasional twinges. In December, 1825, seven years before his death, he had a bad attack of renal colic. He died at the age of 62, following several attacks of cerebral hemorrhage. Outside of these diseases, his life was marred only by occasional spells of nervous exhaustion and rather rare attacks of what would ordinarily be called rheumatism. In his account of his own illnesses Scott describes with humorous skepticism the various remedies that were employed. Dr. David M. Greig[3] compares the life of Scott with that of another famous British author and poet, Lord Byron, who also was lame. Their careers are an indication of the way in which a physical defect may on occasion stimulate or be associated with cerebral activity leading to great fame.

EMBRYONIC SERUM COMPLEMENT

In many species of animals the embryonic blood does not contain demonstrable serum complement. Maugeri[1] of the Hygienic Institute, Berlin, could not detect complement in the serums of embryo rats or of embryo domestic swine. No trace of complement was demonstrable in the rat till the end of the first month of extra-uterine life. About two thirds of the adult complement titer was reached by the beginning of the third month. Maugeri quotes these data in support of the Friedberger theory that there is a definite ontogenetic cycle of serologic ripening in the young of many animal species, and presumably also in human beings. The low complement titers of premature infants suggests this cycle, even though the average full-term infantile titer is 80 per cent of that of the average maternal blood. Maugeri's demonstration of the relatively slow postnatal formation of serum complement in rats may well explain the rapidly increasing resistance of growing rats to pneumococci[2] and certain other infections. Many investigators have assumed that such an increase can result only from individual contact with the corresponding specific infectious agent or its reciprocal equivalent.

---

[3] Smith, S., and Zilva, S. S.: J. Soc. Chem. Ind., Chem. & Ind. **51**: 166, 1932.

[4] King, C. G., and Waugh, W. A.: Science **75**: 357 (April 1) 1932. Waugh, W. A., and King, C. G.: Isolation and Identification of Vitamin C, J. Biol. Chem. **97**: 325 (July) 1932.

[5] Hexuronic Acid and Cellular Respiration, Current Comment, J. A. M. A. **99**: 567 (Aug. 13) 1932.

[1] Hutchison, Robert: Medical History of Sir Walter Scott, Edinburgh M. J. **39**: 461 (Aug.) 1932.

[2] M'Neil, Charles: Sir Walter Scott and Res Medica, Edinburgh M. J. **39**: 486 (Aug.) 1932.

[3] Greig, D. M.: The Cephalic Features of Sir Walter Scott, Edinburgh M. J. **39**: 497 (Aug.) 1932.

[1] Maugeri, S.: Ztschr. f. Immunitätsforsch. **74**: 473 (May) 1932.

[2] Reciprocal Immunologic Relationships, editorial, J. A. M. A. **99**: 39 (July 2) 1932.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

August 22. Highways, Healthy Ways.
August 24. Infantile Paralysis.

There is also a fifteen minute talk sponsored by the Association on Saturday from 10:45 to 11 a. m. over Station WBBM.

The subject for the week is as follows:

August 27. Exercise for the Middle Aged.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

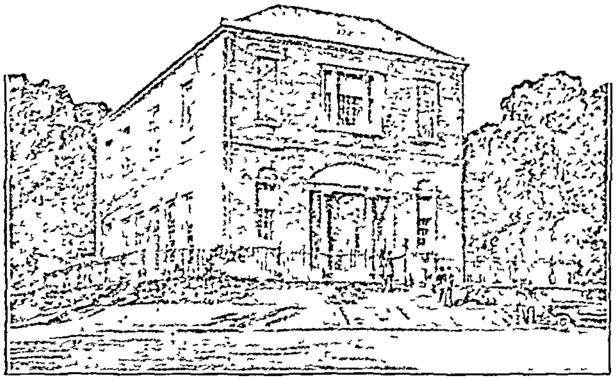
ARKANSAS

Personal.—Dr. Verdo T. Webb has been appointed health officer of Little Rock, succeeding Dr. Charles R. Moon, resigned.

License Restored.—The license of Dr. Joseph B. Story, Dierks, was restored, May 10, on his promise to refrain from advertising and on petition of the Howard County Medical Society. Dr. Story's license was revoked, May 12, 1931.

DELAWARE

Building Presented to Academy of Medicine.—The Academy of Medicine of Delaware dedicated a new home in Wilmington, June 1. It is a three story colonial structure, formerly occupied by the old National Bank of Delaware. Several small rooms and an auditorium, where meetings will be held, are located on the first floor. The second floor will be devoted to a library, private study and stack rooms. Third floor space will be used for club rooms. The Delaware Academy of Medicine was organized about three years ago, the state journal reports, with the establishment of a medical library as its primary purpose. It was incorporated under the laws of Delaware as a nonprofit organization to foster among its members interest in medical, social, economic and educational conditions, and to render service without recompense toward these ends in the state. Provision was made for young physicians to become affiliated at low dues, so that no reputable physician or dentist in the state would be denied its use. Presentation of the building was made by several persons in Wilmington. In addition to the gift of the building, it is the intention of these persons to furnish also the necessary equipment.



DISTRICT OF COLUMBIA

Health at Washington.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million for the week ended August 6 indicate the highest mortality rate (14.7) appears for Washington and the rate for the group of cities as a whole, 8.9. The mortality rate for the corresponding week last year for Washington was 15.5, and for the group of cities, 10.4. The annual rate for eighty-five cities is 11.6 for the thirty-one weeks of 1932 as against a rate of 12.5 for the corresponding period of the previous year The department advises caution in the interpretation of these rates, as weekly figures fluctuate widely, as some cities are hospital centers for large areas surrounding them and as Negro death rates are usually high.

ILLINOIS

Personal. — Dr. William T. Short, Stonington, has been appointed district health superintendent of the state department of health, succeeding Dr. Frank P. Auld, Shelbyville. He will have charge of the counties of Macon, Christian, Fayette, Shelby, Cumberland and Montgomery.

Diphtheria Wanes in Illinois.—According to the *Illinois Health Messenger,* case reports of diphtheria for the first twenty-nine weeks of 1932 indicated a decline of 31 per cent as compared with the total for the corresponding period of 1931. In the first five months of 1932 there were 112 deaths from diphtheria against 184 in that period of 1931, a decline of nearly 40 per cent. Cases reported during the six weeks ended July 18 were less than one half the number for the similar period of 1931, which was one of the most favorable years on record Credit for the decrease in diphtheria is given to the successful diphtheria immunization campaigns carried on throughout the state. Never before have so many children in Illinois been immunized against the disease as during the last twelve months, the *Health Messenger* reports.

Chicago

School for "Occupation Therapy."—Plans are under way for the establishment of a school for occupation therapy to work in connection with the Goodwill Industries' shops for the handicapped and occupation service, and the Cook County Hospital. The organization meeting was held, July 27. Work is being directed to have the school in operation by early fall. The school will be housed in the headquarters of the Goodwill Industries, which is now located in the building formerly occupied by the University of Illinois College of Medicine and which was turned over to the industries in recognition of its work for the rehabilitation of the handicapped. The school is to be independent from all existing medical institutions so as to be able to serve all of them equally well, an announcement states. It is intended to offer free demonstration courses to medical students and physicians. Intensive courses of two, three or four years, to train technicians and practitioners of occupational therapy, may be developed on the basis of the lowest possible student fee to render this nonprofit enterprise self-sustaining in the course of time, the announcement continues. The board of trustees, when organized, will devise some plan of providing a budget. The Goodwill Industries are organized for philanthropic purposes, and the primary objective is to provide occupational training for the handicapped.

INDIANA

Assumes Deceased Physician's Identity.—The arrest of a Negro, whose name is believed to be R. L. Combs, and the revocation of a license by which he was practicing medicine was recently reported by the Indiana state board. The American Medical Association, Feb. 12, 1931, received information from a Dr. William T. Thomas indicating that he was practicing at 2105 Broadway, Gary; that he was a graduate of the Louisville National Medical College in 1897, and that he was licensed in Indiana in the same year. Subsequent checking of the records disclosed that a physician with this name and record was reported to have died at Marion, Sept. 6, 1924, of heart disease. The Indiana State Board of Medical Registration and Examination found out that "Combs" several months ago called on Mrs. Ileene Thomas Burden, stating that he was a representative of the state of Kentucky. He said that he was prepared to secure for her a monthly pension of $75 if she would furnish the diploma and license of her father, Dr. William T. Thomas, who died in Marion in 1924. Mrs. Burden testified at the recent hearing before the state medical board that she identified the man who is practicing medicine at 2105 Broadway as the same man who obtained from her the diploma belonging to her father. The Grant County license, obtained by the method described, was presented to the Lake County clerk, June 12, 1928, and a new license was issued. The board of medical registration has revoked this license and will proceed to prosecute "Combs" should he continue to "practice" in Indiana. It is reported that he is now charged by the federal government with obtaining a narcotic permit by fraud.

LOUISIANA

New District Medical Society.—Dr. Daniel N. Silverman, New Orleans, councilor of the newly organized Second Congressional District Medical Society, presented a charter to the society at a meeting in Destrehan, July 22. By-laws were adopted by the society, and it was decided to hold regular monthly meetings the third Thursday in each month. Dr. Lionel O. Waguespack, secretary, gave a talk on the purposes of the new society. Other speakers included Drs. Roy B. Harrison and Paul T. Talbot, New Orleans, president and secretary, respectively, of the state medical society; Dr. Hector E. Bernadas, chairman of the council of the state society, and Dr. Leon J. Menville, New Orleans, president of the state board of medical examiners.

Alleged Violation of Milk Ordinance.—A recent investigation by the board of health of New Orleans resulted in the filing of eighty-three affidavits in recorders' courts, July 24, against dairymen "for alleged violation of the city ordinance prohibiting the sale of milk adulterated with dried milk powder." These dairymen have been selling the "powdered" milk for pure milk and charging usual prices, newspapers stated. It was pointed out that salesmen distributed the powder to the dairymen, giving them detailed instructions how to mix it so that the adulteration could not be detected. The dairyman could buy four pounds of powder at about 9 cents a pound. This could be made into ten gallons of "milk," which would be mixed with twenty gallons of pure milk, newspapers reported.

MARYLAND

Outbreak of Food Poisoning.—Eating custard-filled doughnuts caused the illness of twenty-nine people in Baltimore early in July. An investigation by the city health department revealed the fact that the doughnuts were made at one bakery and then placed on sale at a number of grocery stores. The process of manufacture was such that the custard filling was probably allowed to remain unprotected and unchilled from the time it was prepared until the final filling procedure and sale, Baltimore *Health News* states. It was said that the warning which had been issued to the baking industry of the city last year by the bureau of chemistry and food had not been heeded in this instance.

MICHIGAN

State Medical Meeting at Kalamazoo.—The one hundred and twelfth annual meeting of the Michigan State Medical Society will be held in Kalamazoo, September 13-15, under the presidency of Dr. Carl F. Moll, Flint. Meetings will be held at the First Presbyterian Church and the Civic Auditorium. As a departure in the program this year, the individual sections will convene in the mornings, and in the afternoons will join in combined meetings. The preliminary program includes the following speakers with their subjects:

Dr. Howard J. Parkhurst, Toledo, "Physical Therapy of the Commoner Skin Diseases"
Dr. George F. Suker, Chicago, "Retinal Lesions Encountered in Cardiovascular Disease."
Dr. Millard F. Arbuckle, St. Louis, "Factors in Making the Diagnosis in Sinus Disease."
Dr. Walter I. Lillie, Rochester, Minn., "Clinical Significance of Retrobulbar Neuritis."
Dr. Warren T. Vaughan, Richmond, Va., "Certain Rhinologic Aspects of Allergy."
Dr. Stuart W. Harrington, Rochester, Minn., "Empyema."
Dr. Samuel A. Levine, Boston, "Treatment of Acute Coronary Thrombosis."
Dr. Joseph L. Miller, Chicago, "Arthritis"
Dr. Christopher M. Spooner, Toronto, Ontario, "Anomalies of the Genito-Urinary Tract in Children."
Dr. Francis E. Senear, Chicago, "Infantile Eczema."
Dr. Arthur U. Desjardins, Rochester, Minn., "Therapeutic Radiology in Relation to Infancy and Childhood."
Dr. Frederick H. Falls, Chicago, "Diagnosis and Management of Premature Detachment of Normally Implanted Placenta."
Dr. Eric M. Matsner, New York, "Methods Employed in Birth Control."
Dr. Joel E. Goldthwait, Boston, "Posture."

Dr. Edward H. Cary, Dallas, Texas, president, and Dr. Olin West, Chicago, secretary and general manager, American Medical Association, will speak. Dr. Morris Fishbein, editor of THE JOURNAL, Chicago, will address the second general meeting, Thursday evening, September 14, on "The Community's Responsibility to the Medical Profession." In addition to the out-of-state guests, an elaborate program will be presented by Michigan physicians. Round table conferences will be held and moving pictures shown.

MINNESOTA

Violates Basic Science Law.—James J. Carrigan, St. Paul, pleaded guilty, July 19, to a charge of practicing healing without a basic science certificate, before Judge Loevinger of the district court. The defendant, who claims to be a chiropractor and a naturopath, and who formerly practiced in Alberta, Canada, attempted to treat a woman afflicted with a nervous disorder. In addition to giving the patient massage treatments, he sold her a magna-coil electric blanket for $100 and a rupture appliance for $12. He had no medical education whatever and stated in court that he left school at the age of 16. Carrigan was sentenced to ninety days in the St. Paul workhouse. The sentence was stayed for one year and the defendant placed on probation on condition that he refrain from practicing and selling any devices or remedies for the curing of ailments. He was required to return the $12 received from the sale of the appliance.

MISSISSIPPI

Courses in Obstetrics.—Dr. Felix J. Underwood, Jackson, announces that four additional courses in obstetrics for physicians will be given by Dr. James R. McCord, professor of obstetrics and gynecology, Emory University School of Medicine, through an arrangement of the state board of health with the federal children's bureau. A course will be given one week in October, one in November and two weeks in December. Dr. McCord has already given courses of lectures at Indianola, New Albany, Vicksburg, Laurel, Houston, Brookhaven, Jackson, Meridian and Gulfport.

Society News.—At the meeting of the Issaquena-Sharkey-Warren Counties Medical Society, July 12, speakers included Drs. Winston C. Pool, Cary, on "Congenital Syphilis," and Henry B. Goodman, Vicksburg, "Sodium Amytal in the Treatment of Eclampsia." The program, June 14, was given by Drs. Willard H. Parsons on appendicitis; Nathan B. Lewis, the need for anesthetics during labor, and Guy P. Sanderson, Vicksburg, pyelitis.——The East Mississippi Medical Society was addressed, June 16, by Drs. Willis Walley, Jackson, on "Carcinoma, Its Treatment with Special Reference to the Use of Deep X-Ray Therapy," and James L. Parkes, Union, "Tularemia." Hon. Marion W. Reily, Meridian, discussed "The Doctor in the Court Room."——Dr. William F. Hand, Jackson, spoke on "Sarcoma of the Pancreas" before the Central Medical Society at Jackson, June 21.——"The Fracture Problem" was discussed by Dr. Willis C. Campbell, Memphis, Tenn., before the Pike County Medical Society, July 7.——At a meeting of the South Mississippi Medical Society in Hattiesburg, June 9, speakers included Drs. Roland H. Cranford, Laurel, on "The Cancer Situation in Mississippi"; William A. Dearman, Gulfport, "Infectious Mononucleosis," and Theophilus E. Ross, Jr., Hattiesburg, "Treatment of Normal Breech Presentation."

MISSOURI

Personal.—Dr. Malcolm A. Bliss, St. Louis, was presented, June 24, with the "distinguished service medal" for conspicuous service in private life, the first to receive the medal since it was authorized by the last legislature. The presentation was made by Governor Caulfield in the state senate chamber, with prominent physicians and members of the state eleemosynary board in attendance.

Graduate Meeting.—The Five County Medical Society of Southeast Missouri held its second quarterly graduate session at New Madrid, June 14. Lecturers and their subjects were Drs. Joseph P. Costello, "Treatment of Some Common Acute Conditions of Infants and Children"; Harry G. Bristow, "Diagnosis and Treatment of Some Acute Infections," and Alphonse McMahon, "The Endocrines." All the speakers were from St. Louis. The next meeting of the Five County Society will be the second Tuesday in September, with the Dunklin County Medical Society acting as host.

Low Diphtheria Death Rate.—The lowest number of deaths from diphtheria ever recorded in St. Louis was noted for the year *1931*. The rate was 4.5 for each hundred thousand of population Credit for the decrease in the disease is given to the campaign conducted during 1931 by the health departments and medical societies of St. Louis and St Louis County A marked advance in the mortality from tuberculosis was noted There were 878 deaths, a rate of 105 9 per hundred thousand, the highest rate in seven years and an increase of 21 per cent over 1930 This is the greatest increase of any city in the country, the journal of the state medical association reported

NEW HAMPSHIRE

Physicians Honored by State Society—At the recent annual meeting of the New Hampshire Medical Society in Manchester, gold medals marking the completion of fifty years' membership in the society were presented to Drs Herbert S Hutchinson, Milford, and George Weare Weymouth, Lyme. Tribute was paid also to three other physicians who had practiced fifty years, although they had not held membership for that period Drs Leonard Jarvis, Claremont Ira Joslin Prouty, Keene, and Edward H French, Quincy Mass Dr French was formerly connected with the New Hampshire State Hospital, Concord Newspapers have reported that Dr Prouty died, July 31.

NEW JERSEY

Examination of Domestic Employees.—Results of the first fifteen months' operation of an ordinance requiring physical examination of domestic employees in Newark are reported by the city health officer in *Public Health News* During 1931, when the law was not generally known to the public, 2 863 persons were examined More definite efforts toward enforcement in the first three months of 1932 brought about 3 136 examinations As a result of clinical examinations and a check up of domestics attending venereal disease clinics, eighty persons were found infected with syphilis in some form, thirty-eight had skin diseases and thirty-one had tuberculosis Those who have arrested cases of tuberculosis or venereal disease in a noncommunicable form are allowed to continue in employment but those who may communicate a disease are refused permission to continue The department follows up all applicants found to be infected to see that proper treatment is carried out The nature of the disease is not divulged to the employer

Centenary of Trenton Board of Health—An ordinance creating a board of health in Trenton, dated July 3, 1832 has recently been found by the city clerk This was fifty-five years before local boards of health were required by law in New Jersey The board appears not to have been appointed for a definite length of time, but one could be appointed in case of need and it could dissolve itself when its work was done Among the names of members of the first board were Drs James T Clark, John McKalway, Peter Howell, Joseph C Welling and Francis A Ewing The board was authorized to procure and circulate advice concerning the danger of infectious and contagious diseases and in time of epidemic to "take such measures as they may deem best calculated to arrest its progress and render its ravages less destructive," and it was its duty to "make daily reports of progress of the disease and the measures which they have adopted' The first part of the ordinance outlined a procedure for keeping streets and public grounds clean, inhabitants were required to clean their pavements each week from May to October and were liable to fines of $25 if they omitted this task

NEW YORK

Dr. Goler Retires—Dr George W. Goler, health officer of Rochester since 1896, retired from that office, July 31 He plans to continue as lecturer in preventive medicine at the University of Rochester School of Medicine and Dentistry and to finish writing a history of medicine in Rochester during the past fifty years Dr Arthur M Johnson, deputy health officer for eight years, succeeded Dr Goler

New York City

Dr. Park Receives Medal—The National Academy of Sciences announces that its public welfare medal for eminence in the application of science to the public welfare is to be awarded to Dr William Hallock Park, director of research laboratories of the New York City Department of Health The citation refers to Dr Park's work as a pioneer and leader both in research and in the application of scientific discovery in the prevention of disease The medal will be presented at the next annual meeting of the academy at Washington, D C, in April, 1933 Ten previous awards have been made, as follows the late Gen George W Goethals, 1914, the late Dr William C Gorgas, 1914, Cleveland Abbe, Ithaca, N Y, geographer, 1916, Gifford Pinchot, present governor of Pennsylvania, 1916; Samuel W Stratton, late president of Massachusetts Institute of Technology, 1917, President Hoover, 1920; Dr Charles W Stiles, Washington, 1921, Dr Charles V Chapin, Providence, R I, 1928; the late Stephen T Mather, 1930, and Wickliffe Rose, former president of the General Education Board New York, 1931 This award was established in 1913 through a gift from Mrs Helen Hartley Jenkins, in memory of her father, Marcellus Hartley.

Lying-In Hospital Moves to Medical Center.—The last patients left the Lying-In Hospital, Second Avenue and Seventeenth Street August 7, as final preparations were made to close the institution which becomes a part of the women's hospital of the New York Hospital-Cornell University Medical Center when it opens, September 1 Lying-In Hospital, founded in 1798 was said to be the oldest maternity hospital in the city The Lying-In Society, which operated it, was founded especially to care for the widows of men who died in a yellow fever epidemic at that time, according to an account in the New York *Herald Tribune* First established at a house on Cedar Street, the hospital has occupied various sites From 1801 to 1827 its income was used simply to maintain a ward in the New York Hospital For many years afterward the society operated a district service for mothers in their own homes In 1895 with the aid of the late J Pierpont Morgan, a hospital for forty patients was established in the old Hamilton Fish mansion in Stuyvesant Square, with Dr William H. Spiller, present medical superintendent, as resident physician This building was closed in 1899 and there was no hospital in operation until January, 1902 when the building just vacated was opened It is reported that this building will now be taken over by Gramercy Hospital, formerly the New York Skin and Cancer Hospital

OHIO

District Meetings—The Seventh District Medical Society held its annual meeting, June 17, at the Union Country Club, Dover Speakers on the scientific program were Drs Isaac B Harris Columbus on 'Acute Obstruction", Charles J Shepard, Columbus, 'Treatment of Prevalent Skin Diseases', Wells Teachnor, Columbus, 'Injection Treatment of Internal Hemorrhoids ' Drs Herbert M Platter, Columbus president of the Ohio State Medical Association, and Emmet B Shanley, New Philadelphia, councilor of the seventh district, also made addresses ——The annual meeting of the Eighth District Medical Society was held, June 23, at the Rocky Glen Sanatorium, McConnelsville Among the speakers were Drs Charles A Doan and Ray W Kissane, Columbus, on 'The Basis of Prognosis in Disease and "Habits in Heart Disease," respectively. Dr Herbert M Platter, Columbus, president of the state medical association, and Dr Harry G Southard Marysville, state health director, were among the speakers at a luncheon meeting

PENNSYLVANIA

Society News—The medical societies of Clearfield, Jefferson and Indiana counties held their third joint meeting, August 11, at Indiana with the following speakers Drs Edward B Heckel, Pittsburgh, "Injuries to the Eyeball , Donald Guthrie, Sayre, 'Symptomatology and Early Diagnosis of Intestinal Obstruction", Ronald L Hamilton Sayre, "Electrocardiography as an Aid in Diagnosis of Heart Disease." Dr Hugh Robertson, York, showed a motion picture film of an electrocardiogram during angina pectoris ——The Cambria County Medical Society held its annual "north of the county" meeting at the Chetremon Country Club near Cherry Tree, August 11, with Dr William S Wheeling, Windber, as the speaker, on disease of the thyroid The society will hold its annual picnic, September 8, at the Johnstown Rod and Gun Club.

Philadelphia

University News—A clinic for prenatal and postnatal care to needy mothers was opened, August 5 at the Germantown Community Center, under the auspices of the Woman's Medical College of Pennsylvania Dr Ann G Taylor, clinical professor of obstetrics, is in charge

Health Department Requests Serum—Dr J Norman Henry, director of public health, is reported to have issued a call for donations of blood serum from persons who have had infantile paralysis, to meet the need in current cases It was said that forty cases had been reported in the city between August 1 and 8 In 1931 there were only fourteen cases in the whole month of August

Hospital News.—Garretson Hospital, the maternity hospital of Temple University School of Medicine, is to be removed to a new addition to the Temple Hospital, it has been announced ——An artificial respirator has been presented to Northeastern Hospital, in memory of the late Dr John H Lock, by Dr and Mrs Frederick E Keller, his son-in-law and daughter ——Dr Joseph C Bloodgood, Baltimore, gave an address at Jeanes Hospital, August 2, on cancer

TENNESSEE

Hospital News. — A $325,000 building has recently been completed at the Western State Hospital, Bolivar, for the care of insane Negro patients It has accommodations for 400 patients, including two wards for the tuberculous —— Martha Gaston Hospital, occupying the building formerly known as the Cedarcroft Hospital newly renovated, was opened, August 15 Dr Robert B Gaston, owner and superintendent of the new hospital, was formerly superintendent of McFarland Hospital, Lebanon, which will now be operated with Dr Jerry J McFarland in charge

Society News. — Drs Hugh F Crawford and Giles A Coors, Memphis, addressed the Memphis and Shelby County Medical Society recently on "Undulant Fever" and "Postoperative Gangrenous Ulcer of the Abdominal Wall," respectively ——Dr. Julius C Brooks addressed the Hamilton County Medical Society, August 11, on "History of the Medical Profession in Chattanooga," and Dr Fred B Stapp, "Looking Backward"——At the June 28 meeting of the Knox County Medical Society, Dr Richard A Barr, Nashville, spoke on "Preoperative and Postoperative Treatment of Abdominal Cases"——Dr Paul B Welch, Coral Gables, Fla, delivered a lecture before the Sullivan-Johnson Counties Medical Society, Bristol, August 3, on gastro-intestinal reflexes ——Drs Rudolph W Holmes, Chicago, and Frederick C Freed, New York, addressed the Gibson County Medical Society, Trenton, July 25, on obstetrics

WISCONSIN

License Revoked—The license of Dr Leland L Trump, Milwaukee, was revoked by the state board of registration June 29, on the reading of his court record of conviction of manslaughter

Society News—At a meeting of the fifth district of the Wisconsin State Medical Society at Kiel, July 28, speakers were Drs Philip W Brown, Rochester, Minn, on colitis, Kellogg Speed, Chicago, fractures, and Herman C Schumm, Milwaukee, uses and application of plaster of paris Dr William A Evans, Chicago, spoke in the evening on "What's Happening to Doctors"——Three physicians addressed the Racine County Medical Society, Racine, June 16, as follows Drs Walter H Watterson, La Grange, Ill, and Stanton K Livingston, Hines, Ill, on artificial pneumothorax and maggot treatment of osteomyelitis, and Willard Van Hazel, Chicago, thoracoplasty ——Dr Samuel R Mitchell won the first low gross score and Dr Benjamin E Urdan the first low net score at the fifth annual golf tournament sponsored by the Milwaukee County Physicians' Golf Association and the Milwaukee County Medical Society, July 21, at the Waukesha Country Club

WYOMING

State Medical Meeting and Election.—Dr Herbert L Harvey, Casper, was named president-elect of the Wyoming State Medical Society at the annual meeting in Rock Springs, July 18-19 Dr. Frederick L Beck, Cheyenne, was installed as president, Dr Joseph L Wicks, Evanston, was elected vice president, and Drs Edwin Earl Whedon, Sheridan, and Ewald Olson, Meeteetse, were reelected secretary and treasurer, respectively The 1933 annual meeting will be held in Yellowstone Park At the first session the president, Dr Robert H Sanders, Rock Springs, made his annual address and Dr Edward H Cary, Dallas, Texas, President, American Medical Association, gave an address Dr Cary also contributed to the scientific program an address on glaucoma Among other speakers were Drs Foster J Curtis, Salt Lake City, "Raynaud's Disease Differential Diagnosis", William P. Wherry, Omaha, "Sinus as a Source of Infection", Warren Thompson, Omaha, "Blood Dyscrasias", Karl S J. Hohlen, Lincoln, past president, Nebraska State Medical Association, "Modern Phases of Traumatic Epilepsy", Richard A Pearse, Brigham City, Utah, president, Utah State Medical Association, "Tularemia", G Gill Richards, Salt Lake City, "Medical Management of Gastric Ulcers," and Frank B Stephenson, Denver, president-elect, Colorado State Medical Society, "Bone Tumors Roentgenologically Considered" Clinics were held each morning at the Wyoming General Hospital The Sweetwater Medical Society entertained with the annual banquet and dance, Monday evening, July 18

GENERAL

American Hospital Association in Detroit.—The thirty-fourth annual session of the American Hospital Association will be held in Detroit, September 12-16, under the presidency of Mr Paul H Fesler, superintendent, Wesley Memorial Hospital, Chicago Among numerous physicians who will take part in the program are Drs Joseph C. Doane, Philadelphia, who will lead a round table discussion on financial problems of hospitals Fred G Carter, St Paul Minn, who will speak on 'A Medical Approach to Hospital Administrative Problems", Edward J O Brien, Detroit, "Surgical Treatment of Pulmonary Tuberculosis', Henry D Chadwick, Detroit, "The Tuberculosis Problem as It Affects the General Hospital" and Malcolm T MacEachern, Chicago, who will lead round table discussions, among other things, on making greater use of existing hospital facilities, including their use for veterans

American Academy of Ophthalmology and Otolaryngology—The thirty-seventh annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Montreal, Canada, September 19-23 Dr Samuel Hanford McKee Montreal, is president and Dr Burt R Shurly, Detroit, president-elect The opening session will be devoted to a symposium on the progress of general medicine in relation to diseases of the eye, ear, nose and throat Thereafter the mornings will be occupied with demonstrations under sixty-five instructors Four special courses will be given "Histopathology of the Eye' 'Histopathology of the Nose, Throat and Ear," "Lesions of the Fundus' and 'Clinical Pathology of Otitic Lesions" Section meetings will be held in the afternoons The American Board of Otolaryngology will conduct examinations Saturday, September 17, and the American Board of Ophthalmic Examinations will hold examinations, Monday, September 19

Prevalence of Typhoid—Newspapers reported nine cases of typhoid recently in Carthage, N Y, among which two deaths occurred The cases were attributed to a hitherto unknown carrier who was found to have handled the milk supply used by all the patients Dr Arthur T McCormack, Louisville, health officer of Kentucky, warned of a serious epidemic in that state, 603 cases having been reported in July, compared with 105 in July, 1931 Ten cases were reported, July 13, in Hocking County, Ohio, eight of which were in one community, seven cases, including six in children, were being investigated in Athens County Still another outbreak, in Muskingum County, was attributed to swimming in polluted streams Five cases in Newkirk, Okla, caused the state health department to begin an investigation to trace the source of the infection Sixty cases occurred in the state during the week ended July 23, according to the health department The U S Public Health Service announced that 1,231 cases had been reported from forty-six states during the week ended July 23

Survey of Facilities for Lepers—A survey to determine the adequacy of facilities and the extent to which provisions are made for the protection of the public health in the care and treatment of leprous persons in Hawaii has been authorized by a joint resolution of Congress The resolution was based on information furnished by the governor of Hawaii to the effect that there are at the present time 623 patients being cared for at the expense of the territory in its leprosariums The cost entailed in this care is considered a heavy burden on the "limited resources of the territory" Physicians of the U S Public Health Service who will conduct the survey are Drs, James C Perry, John W Kerr and George W McCoy They will prepare an estimate of the cost of construction and equipment of a receiving station and hospital, including the purchase of necessary grounds as well as an estimate of the annual cost of maintenance and operation They will also report on remedial legislation providing for the further control and eradication of the disease in the territory In 1905, a congressional appropriation provided for the establishment of a hospital station and laboratory of the Public Health and Marine Hospital Service of the United States for the study of the methods of transmission, cause and treatment of leprosy at Kalawao, Island of Molokai About 640 acres was transferred in perpetuity to the United States by the territory However, after several years' operation, it was found impracticable for the United States to maintain a separate institution, and through subsequent legislation the land was reconveyed to the territory Except for a station at Kalihi receiving hospital, Honolulu, the territory has since then borne the complete expense of caring for leprous persons in its jurisdiction. None of the territory leper patients have ever been cared for in the leper colony at Carville, La., the establishment of which was provided for by an act of Congress in 1917. The Kalihi station, known as the U. S. Leprosy Investigation Station, is administered by the public health service.

FOREIGN

Typhoid Outbreak in Havana.—Five deaths and thirty-two cases of typhoid were reported in Havana, Cuba, within twenty-four hours in a serious outbreak, the Chicago *Tribune* reported July 27.

Cholera in China.—Newspapers reported, August 2, that cholera was widespread in southern Hupeh. So serious was the spread of the disease in western Honan province, it was stated, that authorities appealed to Nanking for medical assistance. The death rate in the city of Honanfu was mounting rapidly. Bubonic plague was also taking a heavy toll in lives, the report continued. The flooding Canton River demolished 600 houses and drowned 500 persons at Canton proper, it was said. In a home for the aged, which was submerged, eighty persons perished. According to the report, in western Shensi province the Yellow River had inundated thirty towns, leaving 50,000 persons homeless.

Typhus Fever Epidemic.—*Public Health Reports* records a recent epidemic of typhus fever in the Vilna district of Poland. The disease was prevalent in the county of Dzisna and had broken out in the county of Molodeczno, where twenty-three new cases had been reported. Preventive measures had been successful in the counties of Braslaw, Swieciany and Oszmiana, where only six cases had been reported. In Wolozyn County, 150 new cases, with 20 deaths, were recorded. This county was said to be the central point in the epidemic. The disease was prevalent in the districts of Soviet Russia bordering on Molodeczno County, it was said. The Polish public health service reported 106 cases of typhus fever for the period May 8-14, 1932.

Government Services

Army Personals

Major Bartlett L. Shellhorn, relieved at Watertown Arsenal, Massachusetts, and assigned to duty at Fort George Wright, Washington; Major Arthur D. Jackson, relieved at Fort George Wright and assigned to Fort Wadsworth, N. Y.; Lieut. Col. James A. Wilson, assigned at Fort Snelling, Minnesota, effective on completion of present tour of foreign service; Lieut. William A. D. Woolgar, relieved at Fort Lewis, Washington, for assignment to duty in China; Major Thomas L. Long, relieved at San Francisco and assigned to duty in Hawaiian Department; Majors Robert L. Tebbitt and Rae E. Houke, having been found incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, their retirement is announced; Lieut. Col. Harry H. Van Kirk, Columbus, Ohio, proceeded to his home about June 16 to await retirement for the convenience of the government.

U. S. Public Health Service

P. A. Surg. Edward R. Pelikan, relieved at Manila, P. I., June 18 and assigned to duty at Angel Island Quarantine, Calif.; Surg. William F. Tanner, relieved at Rosebank, S. I., N. Y., and assigned at U. S. Quarantine, Brownsville, Texas, to assume charge of service activities; A. A. Surg. Frank D. McCreary, relieved at Evansville, Ind., and assigned to duty at Carville, La.

Course for Reserve Officers

The fourth medicomilitary course of inactive duty training at the Mayo Clinic, Rochester, Minn., for Medical Department Reserve Officers will be held October 16-29. All the facilities of the clinic are placed at the disposal of the officer students and the faculty and staff have volunteered their services in the interest of national defense. Morning hours will be devoted to purely professional subjects selected by the students, afternoons to medicomilitary subjects, and evenings to a lyceum course of general interest, according to the announcement. Application for the course should be made to the director of the Mayo Foundation, Rochester, Minn., or to the Corps Area Surgeon, Seventh Corps Area, Omaha, Neb.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 23, 1932.

The New Edition of the British Pharmacopeia

The new edition of the British pharmacopeia is larger than the edition of 1914, containing 763 pages against 633, and several important changes have been made. A new feature is the addition after the doses of the important drugs of notes for prescribers, giving the amount of active principle in the minimum dose. With the object of simplifying prescribing it is recommended that the symbol ʒ, which has been used to represent 60 grains and also a fluidrachm, and the symbol ℥ used to represent 480 grains, sometimes 437½ grains and also a fluidounce, should be discontinued, and that instead solids should be prescribed in grams and ounces (oz., 437½ grains) and liquids in minims (♏) and fluidounces (fl. oz.) and that quantities should be written in Arabic instead of in the much used Roman numerals. To avoid the possibility of confusion between gram and grain, the symbol G should be used as the contraction for the former. For all processes, chemical and pharmaceutic, the metric system of weights and measures is employed, but doses are expressed in both the metric and the imperial systems.

A considerable proportion of the drugs and preparations of the previous edition have been omitted on the ground that the British pharmacopeia is not a formulary but a book of standards. An arrangement has, however, been made that they will appear in the British Pharmaceutical Codex (which is an imperial dispensatory published by the Pharmaceutical Society). A number of drugs have been omitted on the ground of insufficient medical value. All the local preparations used in the tropical parts of the empire and the colonies have been excluded, because it is thought that these places should have their own local formularies. The whole group of hypodermic injections has been omitted, because it is considered that the physician should prescribe the dose of the active material as such, rather than an official hypodermic injection. Many formulas for powders and pills have been omitted, because it is thought that the combination should be left to the individual physician, though such widely used combinations as Dover's powder, Gregory's powder and black draft have been retained. The wines have been omitted in conformity with the international agreement for the unification of formulas for potent drugs, which requires that none shall be prepared in the form of a medicinal wine.

New introductions are ointments for the eye and industrial methylated spirit, which is permitted for the preparation of certain external remedies, and certain internal ones if the spirit is eliminated from the final product. The progress of organotherapy is reflected in the inclusion of such substances as insulin and pituitary solution. The dose of the latter is given in units only and not in volume because manufacturers are producing entirely different strengths, and physicians, unaware of the fact, have been prescribing by volume. Doses of digitalis are given both in units and in volume; the commission would have liked to give only the former but thought that the medical profession was not quite prepared for this. Of the vitamins only one, apart from cod liver oil, appears, for the reason that it is susceptible of standardization. Of vaccines only one, apart from that of vaccinia, appears; namely, the typhoid and paratyphoid (T. A. B.).

A White Australia: The Problem of the Half-Caste

Dr. Grenfell Price, who is going to America in September to investigate social conditions, particularly in the tropical regions, has returned to Adelaide from a preparatory inspection in North Australia, with much information about the aborigines. He considers that the problem of the future of the race is more important than has been realized. The marrying of half-castes to one another and to white persons was the policy for solving the problem which the physicians at Darwin considered the most hopeful. They told him that there had been no throwbacks as the result of these mixed marriages. The dark pigmentation of the skin disappears eventually. The raising of the wages of half-castes and pure aborigines involved conditions that might force pastoralists from the land. The future of the white Australia policy depended on the pioneer work of white women, who would prosper if temperamentally suited to the life and given proper facilities. It looked as though the policy might succeed in the tropical part of Australia.

A Provident Hospital Scheme for the Middle Classes

Many persons of the middle class are in the unfortunate position of not being subjects for the free medical treatment which the poor receive in serious illness nor able, on the other hand, to bear the great cost, as the rich can. Indeed, for them such an illness, especially if it includes a surgical operation, may be a financial disaster. As a remedy for this evil the British Provident Association has been formed. It aims at providing hospital and nursing-home beds at reasonable charges and covering substantially, if not wholly, the cost of maintenance during the illness, and the surgical fees. The association aims at securing 100,000 contributors of $50 each, so that by means of the money received it can obtain 1,000 beds in the existing voluntary hospitals or in new buildings, to be known as the association's "home hospitals." An important meeting of the association took place at the Mansion House under the presidency of the lord mayor of London. The chairman of the association, Lord Lloyd, said that it was estimated that there were in greater London 600,000 families (2½ million persons) belonging to the middle and professional classes, any of whom might at any time be in need of hospital accommodation for serious illness. In the voluntary hospitals of London, 1,500 beds were available for such a purpose, but many more were needed. While a payment of $50 will provide the benefits for a man and his wife and children up to the age of 21 years it has been decided to accept $25 from single persons who might have a difficulty in providing $50.

In supporting the scheme, Lord Moynihan said that surgery had now been made safe for the patient, but it remained to make the patient safe for surgery. For an operation, days or weeks of preparation might be necessary. Such a procedure as blood transfusion was now a commonplace, and this and other methods were possible only under institutional care. Only twice in the last twenty years had he performed an operation in a private house. Nursing homes gave fairly adequate facilities to the rich, but those who got the best from the surgical side of the profession were the poor, who partook of the benefits of the voluntary hospital system, one of the greatest glories of the country. But with regard to the middle class it had been one of the miseries of his professional life to feel that owing to the inadequate preparation possible to them they had either to be recipients of charity, which they generally detested, to strain their purses unduly to meet the necessary expense, or to ask the surgeon to forego part of his fee. He could say that two thirds of the work he had done in surgery was for no fee, and he was not distinguished from other surgeons in that respect. But that was not the right principle from the point of view of the patients themselves, for it made them reluctant to go to the surgeon again.

Lord Dawson of Penn said that the kernel of the difficulty was that side by side with decreased capacity to pay, owing largely to the financial situation, had grown up increased cost of treatment, resulting from the growth of medical knowledge. A few years ago such diagnosis as was possible was simple; now roentgen examination and chemical analyses might be necessary. The tendency today was to investigate disease in its early stages. He did not think that any scheme of insurance should be confined to serious illness; it should include methods of prevention. Illustrating the increase of cost, he said that the x-ray department of a hospital of 400 beds cost $750 in 1911, $3,750 in 1921, and $14,000 in 1931. There was only one way of meeting the needs of the nation, except for the fortunate few, by mass production. The last thing that anybody who knew the value of medicine would wish was that institutional treatment should replace the care of the patient in his own home by the family physician; but there must be insurance, which was becoming more a part of the fabric of the daily life of the people.

PARIS

(From Our Regular Correspondent)

July 13, 1932.

A Society to Combat Crime

A society has been formed in Paris, on the initiative of Dr. Toulouse, to study, in a group of psychiatrists, medicolegalists, jurisconsults and magistrates, the means of diminishing crime, and particularly that due to uncontrolled passion, which is increasing in France. The explanation is easily found in the extreme indulgence of the juries, who impose insignificant penalties or pronounce acquittals that are often scandalous. Not being in a position to influence the juries, Dr. Toulouse has founded the society of mental hygiene and created the Henri-Rousselle hospital, where free consultations are given in mental disorders. He believes that one can organize crime prevention by starting with the principle that every criminal is abnormal. If the psychiatrist were allowed to intervene, in time it would be possible to diagnose mental states which may become dangerous if left untreated. At the Henri-Rousselle hospital, the patients come of their own accord, although usually at the suggestion of their entourage, disquieted by their peculiar behavior or by their violent words and acts. The most dangerous subjects, however, are those who refuse to go to the hospital. The central problem therefore is to find some legal means to compel them to submit to an examination. It is a delicate matter, for the family physician must not violate the right of privileged communication and cannot report the subject to the authorities. All he can do is to give advice, which is seldom followed. French law does not permit intervention until misdemeanors have actually been committed. In that event, the entourage notifies the police commissioner, who, after securing a physician's certificate, has the subject transported to the special infirmary of the prefecture of police, where he is placed under observation for forty-eight hours in a prison cell, along with thieves and murderers. He is then either released or sent for a further surveillance to a psychopathic hospital, according to the judgment of the medical director of the infirmary, who is a competent psychiatrist but who has not the time nor the facilities for making a thorough examination at the infirmary. At its first meeting, the Société de prophylaxie criminelle proposed carrying out the plan of Professor Claude, which involves the creation of a special medicojudicial tribunal, composed of magistrates, psychiatrists and lawyers, before which persons presenting a mental state disquieting to themselves and to their entourage would be courteously invited to present themselves on the notification of any person having cause to complain of their behavior, and would be brought by force if they refused to come voluntarily. If the questioning and the psychiatric examination reveal only slight disorders that are not a menace to others, the subject would be placed under the observation of his family and would be urged to seek treatment in the center for mental prophylaxis If the disorders were of a more serious nature, he would transferred to a psychopathic hospital, from which, on dismissal, he would be subjected to a discreet surveillance by the police. These provisions are similar to those created for the organization, a few years ago, of the tribunals for incorrigible children. Many other questions dealing with this general subject have been based on the program of the society and have necessitated a division into several sections: influencing of legislation, organization of criminal prophylaxis, criminologic institutions and psychiatric annexes created within the prisons, modification of the criminal code, delinquent children, social factors influencing crime, sexologic criminology, and narcotic addicts and alcoholism. All these sections will present papers at the next meeting of the society.

BERLIN

(From Our Regular Correspondent)

July 18, 1932.

Meeting of the Prussian Council on Health

The committee on dermography and eugenics, of the Preussischer Landesgesundheitsrat, held a meeting, July 2, under the chairmanship of Ministerialdirektor Dr. Schopohl, to consider the importance and tasks of eugenics in the service of public welfare. In his opening address, the chairman called attention to the fact that the biologic heritage of the German people is menaced. With startling clearness eugenic researches show that the families with a sound heritage do not produce sufficient posterity to preserve the status quo, whereas the families with an unsound heritage are increasing unchecked, with the result that they are requiring more and more welfare aid at the expense and to the disadvantage of the families of sound heritage. Eugenic thinking, planning and acting are therefore needed. The desire to safeguard the future of our people may possibly awaken a consciousness of the need of mutual deliberation, whereas otherwise forces may remain at work that will lead to disharmony and the lack of mutual aid.

The meeting was attended by a large number of experts in the fields of hereditary research and psychiatry, medicine and jurisprudence, ethics and pedagogics, public and private welfare work, administration and politics. The speakers were Prof. Dr. H. Muckermann of the Kaiser-Wilhelm-Institut für Anthropologie, menschliche Erblehre und Eugenik; the psychiatrist Prof. Dr. J. Lange of Breslau, and Prof. Dr. Kohlrausch, an authority on criminal law, Berlin. The criteria presented by the speakers may be divided into three parts. The first part emphasized, in agreement with the resolution of the Prussian state council, dated Jan. 20, 1932, the need of a general plan of eugenic education, consisting primarily of instruction in the theory of heredity and in eugenics, and in the training of teachers, physicians and all persons who are engaged in welfare work. The research centers for theory of heredity and eugenics should be supported in spite of the present economic disturbances. Eugenic education should work toward the end that, in anticipation of a legal regulation as the ultimate goal, a voluntary exchange of health certificates before the engagement may become a family custom. The marriage consultation centers should furnish primarily eugenic advice.

The second part of the criteria deals with the necessity of adopting negative eugenic measures, in order to limit the unrestricted propagation of offspring with serious hereditary defects, which, in ever increasing numbers that are today scarcely endurable, fall a burden to the public welfare organizations; which fill the institutions for mental patients and weakminded persons, and which constitute a large portion of the social service material and the criminal class. In view of the fact that this goal cannot be attained by institutional care, the legal approval of a strict eugenic sterilization (not castration), under suitable controls, is demanded, although no general compulsory legislation is proposed. The destruction of seriously defective living human beings is not contemplated. The social aid given living persons with hereditary defects should not be discontinued, but the extent of the need of social aid service should be lessened by means of sterilization.

The third part of the criteria comprises, in supplementation of the eugenic education, the positive eugenic measures for the advancement of the family of sound heritage. Along with the providing of employment and the establishing of settlements or colonies, the granting of economic favors is to be considered: adjustments in the salaries of persons steadily employed, and reductions of taxes in keeping with the number of children and the family income.

After a lengthy discussion, the criteria were unanimously adopted with slight modifications. For the further elaboration of the question, especially as regards the legal side (sterilization), a commission was appointed that comprises, in addition to the chairman of the Prussian health council, Professors Muckermann, Lange, Kohlrausch and Ministerialrat Ostermann, and will be supplemented by physicians, jurists, theologians, teachers, and representatives of the public and the volunteer welfare services and the civil governments.

New Regulations Governing Medical Students

In the regulations concerning the examination in medicine there are some important changes, taking effect at once, that apply solely to the preclinical years, other changes being reserved for the clinical years. Whereas heretofore the preliminary test called the Physikum has followed the preclinical semesters, now a preliminary test must be taken after the first two semesters, which will include chemistry, physics, zoology and botany. After three more semesters, an examination is given in anatomy, general physiology and physiologic chemistry. Three semesters must intervene between the examination in the pure natural sciences and the anatomic-physiologic test. Until April 1, 1935, however, a transitional ruling provides that under certain circumstances two semesters may suffice.

For admission to the test in the natural sciences the candidate must present not only the graduation diploma of the preparatory school attended but also the so-called Latein-Nachweis, or evidence that he has completed a satsfactory course in Latin. The test in zoology and botany will cover mainly the elements of general biology with especial consideration of the theory of hereditary transmission.

It was finally decided not to hold special lectures in the natural sciences for medical students. It is, however, expected that the professors in the natural sciences will adapt their lectures to the needs of the medical students. If in the examination in the natural sciences the candidate does not secure at least the grade "satisfactory" in all the subjects, he has failed to pass. If he receives the grade "unsatisfactory" in only one subject, the candidate may be excused (in part or entirely) from a review of the subjects in which he had at least a passing grade. But if the candidate fails in two or more subjects, he must review all the subjects covered by the examination.

If the student obtains at least "good" in any subject of the examination, he is relieved of the necessity of reviewing that subject for a second test. The second examination will not ordinarily be given until after the lapse of a complete semester. If the student fails in as much as one subject of the second examination, he is absolutely excluded from taking a third test. Nor is the student permitted to begin his studies over again and thus secure a further admission to the test. The two preliminary tests must be taken within a period of twelve months; otherwise no credits obtained in any subjects will be recognized.

In view of the serious consequences that may arise from a mental disorder or mania in a person practicing the art of medicine, it has been decreed that, in the event of the existence of such a condition in an applicant, admission to the tests, the acceptance of an internship, and the securing of a license to practice will be withheld, if the fear appears justified that the candidate, on account of his disorder, may not be a reliable physician.

BELGIUM

(From Our Regular Correspondent)

July 6, 1932.

Meeting of International Bureau of Medicomilitary Bibliography

The second session of the Office international de documentation médico-militaire was held at Liége, June 23-25. More than 200 representatives of twenty-six different nations, three of whom were from the United States, participated.

The opening meeting, held in the Palais du gouvernement provincial, was attended by a large proportion of the diplomatic corps accredited to Belgium, and by the chief officials of the city and the province. Governor Priard in the welcoming address expressed his gratification at seeing assembled an intellectually élite body whose ideals are devoted to the love of peace. Colonel Voncken, of the army medical corps of Belgium, the next speaker, outlined the great task to be performed in order that their mission with respect to peace and human welfare, the international training of military physicians, and the formation of bibliographic collections may be fulfilled. Professor Mahaim considered then, in the light of international law, the work of the military physician and more particularly the organization of international cooperation in this field. Colonel Van Baumberghen of the Spanish army, chairman of the permanent committee, declared the second session of the Office international de documentation medico-militaire to be formally opened.

Major Dendal discussed the menace of aerochemical warfare from the point of view of the protection of the civil population. While all war marks a return to barbarism, it is nevertheless an eventuality that must be recognized. Recent air maneuvers appear to indicate that aerochemical warfare will play a horrifying part in the deciding of a military campaign, but in reality numerous physical conditions will prevent its complete realization. The civil population must not underestimate the danger and must organize in time of peace for its protection and for the aid of victims of aerochemical attacks. At the close of Major Dendal's address, Governor and Madame Pirard received in their salons the notables present. The papers were presented, June 23-25, and a brief analysis of them will be given.

Major Van De Roemer, of the Netherlands army medical corps, explained the advantages of the use of water routes, not only as a means of evacuation but also as a means of transporting a complete sanitary unit. He described the installations that would be carried out in time of war, such as a surgical ship (1,000 and 500 tons), hospital ship, personnel ship, supply ship, and a ship for disinfection and disinfestation.

General Inspector Dopter, of the medical corps of the French army, called attention to the gravity of a diphtheria outbreak in the army. He pointed out the difficulties of vaccination in time of war. The use of the new hyperactive anatoxin has made it possible to obtain the same results with only two inoculations instead of three.

Captain Govaerts explained the modern conception of a lesson in gymnastics: the phase of getting one's stride, the phase of maximum effort, and the phase of a progressive return to a state of rest. He elucidated also the physiologic conceptions that have impressed on present-day gymnastics its peculiar character.

Colonel Thomann, pharmacist of the Swiss army medical corps, discussed the requirements of the individual first-aid kit carried by every soldier. He cited the conclusions of the commission on standardization on this point and demonstrated the different types of dressings in use in the various armies.

Lieutenant Colonel Vollenweider, of the Swiss army medical corps, showed what great care is taken in selecting the reserves in the Swiss army, and with what great diligence the physical training of the recruit is carried out. He explained also the procedure for invaliding for infirmities contracted in the army.

Commandant Taditch, of the army medical corps of Yugoslavia, discussed the organization and the functioning of the bacteriologic laboratories of the army in the field. The bacteriologic laboratory has considerable importance under ordinary conditions and might become exceedingly important in the event of bacteriologic warfare, the launching of which is a possibility.

Colonel Schickelé, of the French army medical corps, explained first the governing principles of the present organization: evacuation and hospitalization are not two distinct acts but are closely associated. He showed how improvements in the means of transportation had made it possible, within a few hours, to evacuate the wounded to a zone where they find adequate facilities for treatment. He discussed the mathematical data that will enable one to determine the extent of the facilities needed, on the basis of the number of men in action.

In this connection a resolution reading as follows was presented and turned over to the permanent committee of the Congrès internationaux de médecine et de pharmacie militaires:

The assembly of officers of the army medical corps of twenty-six nations, meeting at Liége on the occasion of the second session of the Office international de documentation de médecine militaire, hereby promulgates the following resolution:

> With a view to assuring the favorable hospitalization and prompt treatment of the sick and wounded in time of war, it is desirable that certain areas be reserved for the army medical service; that all organizations of military nature be excluded therefrom, and that these areas enjoy such immunity as is conferred by the convention of Geneva.

Lieutenant Colonel Vargas advocated a record card, which the wounded and sick will receive when their wounds are first dressed or medical treatment is given and which will accompany them during their evacuation toward the rear. This card differs from the model recommended by the commission on standardization but is nevertheless similar in style and content.

In addition to this series of communications, the permanent committee arranged with Colonel Schickelé, of the French army medical corps, for a public lecture to be delivered at the University of Liége. After placing at the foot of a monument erected to the memory of the university students who died in the war a magnificent wreath with the colors of military medicine, Colonel Schickelé entered the university auditorium, where the élite of the city was gathered with the Belgian and foreign members of the society. Colonel Voncken presented the speaker, who then gave an historical account of military medicine down through the centuries and pointed out not only the evolution of therapeutics but also the status of the military physician. He recalled the military physicians who stood out at the siege of Troy, and mentioned Ambroise Paré, Larrey and others. During this session, the mayor of the city of Liége, surrounded by his aldermen, turned over to the permanent committee certain rooms that he placed at the disposal of the Office de documentation. A reception given by the city of Liége brought together the delegates, the civil and military authorities, and the members of the Société liégeoise.

The government of the United States was represented by Commander William Seaman Bainbridge, member of the permanent committee of the Congrès internationaux de médecine et de pharmacie militaires, and Capt. W. H. Bell of the United States Marine Corps. Commander Bainbridge presented a communication in which he emphasized the efforts being put forth in the United States to secure the meeting at Washington, in 1935, of the eighth International Congress of Military Medicine. It appears, furthermore, that the heads of the medical departments of the army, the marine and public health are working to secure the collaboration of the United States government for the holding of the congress at Washington in 1935. The permanent committee of the Congrès internationaux de médecine et de pharmacie militaires held several meetings concerning the seventh congress, to be held at Madrid, May 2 1933.

The Belgian League of Dental Hygiene

The Ligue belge d'hygiène dentaire, created at the close of the International Exposition of Dental Hygiene, in August, 1930, at Brussels, has about completed its organization. Established on the initiative of the Association générale des dentistes de Belgique, it makes an appeal to all practitioners, stomatologists, dentists, and physicians interested in social hygiene—pediatricians and school health officers. The league has secured the patronage of the chief social organizations, which are continuing to give it the support that they gave to the congress. While the launching of a program requires time because of the need of collecting funds and equipment, it has been possible to organize some activities. Thanks to the aid of similar foreign organizations, the league was able to maintain for a year, in the quarters placed at its disposal in the Palais Mondial, a demonstration of dental hygienic propaganda. The original collections having been returned to the owners, the material is now rather reduced, but the league has been able to maintain a small nucleus and hopes to be able to develop it rapidly. In collaboration with the Red Cross of Belgium, it publishes at present various tracts in promotion of dental hygiene.

BUCHAREST

(From Our Regular Correspondent)

June 17, 1932.

The Organization of Public Care of Children

Although there are in Rumania several laws, enacted in 1910, 1921, 1926, 1929 and 1930, relating to the protection of infants and children, they are inadequate to modern conditions. This is partly due to the undisciplined public and partly to lax enforcement of the laws. Another handicap to obtaining the full benefits from a well organized children's protection campaign is that the number of outlying organizations is small and they are unequally distributed in the different regions; there is no close cooperation between state and private protection of children; finally, the expenses are high: 163,000,000 lei yearly, about a million dollars.

These facts awakened the thought to lay the foundation of a new organization. At a meeting recently, it was resolved that the leaders of the present organization appeal to the government and suggest the passing of a law which shall establish the status of children really needing care, of whom there are about 15,000 in the land. The next step should be to organize a central bureau in the ministry of public health for all the ramifications of children's protection. In every one of the twelve principal towns and cities of Rumania there should be a children's protection central organization which would have to deal with social service, the establishing of children welfare homes, the appointment of traveling instructors to villages suitable for the purposes of children's colonies, and the establishment of children's hospitals and obstetric wards. Thus it would be possible to carry on children's care and protection work for about 133,000,000 lei yearly. The sum represents only one eighth of the sum spent in France for the same purpose, in spite of the fact that France's population is only two and a half times as great as that of Rumania. According to Dr. I. Nemoianu, an apostle of the cause of the care of children, the contemplated organization would shelter from 12,000 to 36,000 children annually, afford about 400,000 medical consultations and assist about 15,000 mothers, and sponsor between 300 and 400 lectures.

Calmette's Tuberculosis Vaccine

There is no law in Rumania which makes the use of B C G compulsory, yet at present antituberculosis vaccinations are being done in forty-eight towns and cities and in eight district dispensaries. The number of babies already vaccinated amounts to about 70,000.

The vaccinations, in general, are well tolerated. While the general mortality rate of nonvaccinated children has amounted to from 16.6 to 25 per cent, the rate for those vaccinated varies from 14.4 to 7.3 per cent. Among 17,535 children who were closely observed during 1929, there were 1,005 infants born and brought up in a tuberculous environment; the tuberculosis mortality rate of the latter could be established at 2.1 per cent. On the other hand, the rate among nonvaccinated ones amounted to between 15 and 30 per cent. In Bucharest, the general mortality rate of infants under one year (18 per cent) fell to 8 per cent among the vaccinated children. The Rumanian pediatric authorities unanimously believe that B C G should be given to all infants.

Exanthematic Typhus in Rumania

Typhus exanthematicus was quite unknown in Rumania in prewar times. It appeared first in 1917 and then sporadically and only in the vacinity of Bessarabia, then a part of Russia. Some sporadic cases occurred also in the provinces of Muntenia and Moldova, but it could be established with certainty that these cases affected in the stage of incubation persons coming from infected places.

The cause of the Bessarabian outbreak is easily found: the severe poverty prevailing all over Bessarabia; unhygienic, overcrowded dwellings; lack of personal and general cleanliness; bad nutrition; fresh infection brought continually by refugees coming from Russia; lack of means to combat the scourge, and last but not least the indolence of the public health staff, the members of which are not intelligent enough to perform their important duties. The incidence of the disease during the past autumn and winter was as follows: In October, 1931, the number of cases amounted to 6, in November to 11, in December to 34, in January, 1932, to 67, in February to 89, and in March to 61.

THE NETHERLANDS

(From Our Regular Correspondent)

July 6, 1932.

The Cinchona Monopoly

The cultivation of cinchona was taken up at the May, 1931, meeting of the permanent committee of the Office international d'hygiène publique. A reference was made to the alleged abuse of the Dutch "monopoly" of quinine. Dr. De Vogel, former chief inspector of the public health service in the Dutch East Indies, has published an article calling attention to the critical period during which the cultivation of cinchona in Java was menaced by speculations that caused unheard-of fluctuations in the price of cinchona bark. The government of the Dutch East Indies suggested a solution of the problem that led to the present agreement. The arrangement that has been made is fortunate; otherwise the ruin of the private cultivation of cinchona in Java would have brought about a scarcity of quinine.

The department of agriculture realized that the task associated with the government's cultivation of cinchona should include, above all, scientific research and the collection of information. One could not charge it also with the task of supplying the world's needs in quinine. It was clear that that was the task of private industry. The management considers the stability of prices the basis that will permit the solid establishment of an industry, capable of supplying all the demands that the growing need of quinine would create. This price stability could not be maintained except on the basis of an equilibrium between consumption and production.

The department of agriculture succeeded in convincing the planters' association of the importance of an understanding with the manufacturers of quinine by virtue of which the producers of cinchona bark would be certain of a market the volume of which could be fixed over a period of years. The manufacturers would be assured of regular supplies of cinchona bark, for which they would pay a price that would be in relation to the current price of quinine.

As a result of this action the speculators were prevented from getting possession of the product, but there was a danger that this "community of interests" would abuse its power by raising the price to a point at which quinine would be unavailable to the majority of patients with malaria. The government plantations supply about 10 per cent of the entire production of cinchona bark in the Dutch East Indies. The association was therefore interested in getting control of this supply. The government did not wish to subscribe to the arrangement other than on condition that each participant would promise to cooperate in furnishing quinine at a reasonable price and with the right reserved to withdraw within a year if it thought that the agreement was an obstacle to the supplying of malarial regions with quinine at a reasonable price. This stipulation was incorporated in the agreement in article 117.

The government has never tried to reserve for its own subjects, by special laws, this advantageous position. On the contrary, on several occasions, the government of the Dutch East Indies has furnished plants and selected seed to colonial powers that planned to introduce within their domains the cultivation of cinchona. When requested, it has given generously to other governments advice and information based on the results of research at its experimental plantation, and it has allowed other nations to profit from its experience acquired after great efforts embracing a period of more than seventy-five years.

Our success has sometimes been attributed to the favorable conditions for the cultivation of cinchona, associated with the soil and climate of the archipelago. Be it so; our laws throw open our territory completely to foreign enterprise, under the same conditions that they impose on our nationalists.

There is in our territory a large cinchona plantation belonging to the Italian government, called Chibitoe, which almost equals in extent our government plantation. It appears established that the government of the Dutch East Indies, in assuming the initiative to bring about close collaboration between the planters of cinchona and the manufacturers of quinine, saved private cultivation of cinchona from ruin and assured the world a supply of quinine. In 1851, the first attempts were made to transplant cinchona from South America to Java. It was not as a speculation but as an act of humanity that the government of Netherlands assumed responsibility for the carrying out of this enterprise.

The Health of Cement Workers

In the *Nederlandsch Tijdschrift voor Geneeskunde*, Van Bemmel has published an article in which he states that the extension of the cement and concrete industry has given rise in the Netherlands to fear for the health of the workmen. He comments on the results of an inquiry of the Netherlands bureau of labor inspection in 1930 and at the beginning of 1931.

Cement contains practically no free silica. After many years' work in the cement industry, the lungs have not usually undergone changes of a disquieting nature. Of 469 workmen employed in the cement factories or in the building industries, more than two thirds of whom had had more than five years of experience, there were found seventy-one slight disorders of the respiratory tracts (rhinitis, laryngitis, acute bronchitis); twenty-six cases of chronic bronchitis (or emphysema); eighteen cases of pneumonoconiosis, ten of which were discovered solely by a physical examination, five by a physical examination together with radiography, and three by radiography, and sixteen cases of tuberculosis without pneumonoconiosis. Other pathologic disorders found were acne, furunculosis, conjunctivitis, and the like. The pneumonoconiosis diagnosed by radiography had never reached the second stage.

The results of the inquiry made in the Netherlands confirmed those made elsewhere; namely, that the disorders caused by cement dust have a slight importance. If greater precautions are to be taken, they should be more in the improvement of the methods of work than in the individual measures of protection.

The Crusade Against Malaria

The commission on the antimalarial campaign in North Holland has published its report for 1930. The campaign actively followed for the destruction of mosquitoes in the dwellings has achieved success. The population is now recognizing the importance of this means of combating malaria. More than 13,000 families were visited and given a demonstration, during the year, the special film having been shown many times.

The number of cases reported in 1930 was 2,112, a morbidity of 42.3 per 10,000 inhabitants, as against 53, 35.4 and 34.5, respectively, for the three preceding years. More physicians have shown interest of late in the work of the commission. An indication may be derived from figures showing the notifications made monthly per physician: 9.7 in 1930 as against 8.4 in 1929. All these cases were verified by the presence of plasmodia in the blood.

JAPAN

(From Our Regular Correspondent)

June 31, 1932.

Health Insurance

With the hard times, health insurance, clinics, and a health union coming into being one after another, medical practitioners have been placed in a difficult situation throughout the country. The enforcement of the government health insurance has shown the people that physicians are able to treat patients for much smaller fees and the demand for smaller bills has been urgent. The demand not being met, some people applied to the government last year for a permit to establish a health union in Tokyo. This union is going to establish a hospital of its own with funds collected from members, who can have as many shares as they please at a cost of $5 each. This hospital is to be managed by a nonpractitioner. Shareholders or their families may be treated here.

There are about ten industrial guilds that have independent hospitals. This health union is almost the same in principle as the one mentioned before. For many reasons the state has hesitated but at last has permitted the formation of this union, against the strong opposition of the Japan Medical Association. A local medical association courageously fought against the industrial guild. It tried to require the guild doctors to obey the association's rules, which in some points are incompatible with service in such a hospital. A sensational lawsuit took place between the association and the guild doctors. The court decided that the medical association had no right to bind the doctor when he is working on a salary in a guild hospital, even if he is a member of the association. The plaintiff appealed to the court of appeal but lost. The Japan Medical Association has no longer any means to protect the majority of its members against this tendency of organized health unions. In a certain city, the practitioners all united to establish a private health insurance, which was not, of course, as financially beneficial as that of the government. In almost all the large cities the three kinds of hospitals or unions or insurance systems are going to fight it out with one another. Until the government health insurance enlarges its system so as to include all people in every station of society, no better solution will be found. A rapid change, at any rate, is expected to appear in medical circles in Japan.

Mountain Recreation for Delicate Schoolboys

The Imperial School Hygiene Society will open again the mountain health school for delicate children during the summer vacation this year. These children had been sent to the seaside sanatorium until year before last. Last year, for the first time, they were brought to the mountains, more than 3,000 meters above sea level, in the highland provinces near the Japanese Alps, that a comparison of the effect of the mountain school and the seaside school might be made. The mountains were found to be much more effective than the seaside. Three hundred delicate children from elementary schools in Tokyo and Yokohama, divided into two parties, were taken to the mountains for two weeks, and after they returned home they were carefully examined for six months. Among the boys and girls taken there, the boys of the sixth grade have increased, on the average, 2.6 cm. in height and 2.4 Kg. in weight, which is a remarkable increase when compared with that of ordinary boys of that age, 2.8 Kg. The girls of the same class and of the same age have shown an increase of 3.5 cm. in height and 3.2 Kg. in weight, while the ordinary girls' average increase is 3.8 Kg. The fifth grade boys (average age, 11) have increased 2.8 cm. in height and 3.9 Kg. in weight, while the ordinary boys of the same class increase 2.2 Kg. in weight. As for the girls taken there of the same age, their increase was 4.4 cm. in height and 3.7 Kg. in weight, which is an astonishing increase, if it is compared with that of other ordinary healthy girls, whose average increase is 2.7 Kg. in weight. The one year's experiment is not altogether sufficient to prove that mountain recreation is better than that at the seaside, but at least it has given some such indication.

Antidysentery Vaccination for Children

In the suburbs of Tokyo, the metropolitan police bureau sought to prevent children's dysentery from spreading by means of administration of a vaccine for internal use prepared at the Bacteriologic Research Institute. Types I and II and the "Ohara" bacillus are used to make tablets. The process is as follows: Cultures of the bacilli are mixed at the ratio of 200 mg. of bacilli to 1 cc. of a diluted formaldehyde-sodium chloride solution (1 part of solution of formaldehyde U. S. P. to 25 parts of physiologic solution of sodium chloride). It is left for forty-eight hours at 37 C. After the death of the bacilli is assured, 90 cc. of the mixture is added to 270 Gm. of lactose, 130 Gm. of amylogen, and some mint-oil. After being well mixed, it is strained and dried for eighteen hours at a constant temperature of 45 C. One gram of such a powder contains 45 mg. of bacilli of the three types. One tablet is made of 2 Gm. of this powder. Children between 3 and 5 years of age are given one tablet a day on an empty stomach.

In 1931, 119,904 children were so treated, and among them 535 had dysentery and 222 died. In the same locality 430,499 children of the same age had not been given this preventive, and among them 4,553 were attacked by this disease and 2,235 died of it. Encouraged by this result, the bureau gave this preventive to more than 500,000 children in May and June this year.

Memorial to the Late Baron Kitasato

Friends and disciples met the other day to consider the establishing of a memorial to the late Dr. Kitasato, the most generally recognized benefactor in medical circles in Japan. They came to a unanimous decision to establish a memorial library of medicine in Tokyo, and Count Kiyoura, one of the elder statesmen, was elected chairman of the committee to carry out the plan. As this kind of medical library will be the first one in this country, it is much desired that it be established as soon as possible.

School of Hygiene and Public Health

Owing to the world-wide depression, the offer from the Rockefeller Foundation to the school of hygiene and public health to be built in the near future has been postponed until better economic conditions return. But the candidates for membership who are in America it is believed will continue their studies. The establishment of the school, it is now hoped, will go ahead with funds from the state independent of the receipt of funds from the Rockefeller Foundation.

Marriages

Charles Edwards Parsons, Twillingate, Newfoundland, to Dr. Malvina Elizabeth Moore of Oakland, Calif., June 30.

Harold Benjamin Smith, North Wilkesboro, N. C., to Miss Mary Richardson McLeod of Cheraw, S. C., June 11.

Joshua Jack Grizzard, Jr., to Miss Ruth Corinne Cleek of Hot Springs, Va., in Richmond, June 22.

Frederick Lionel Finch, Jr., to Miss Melba Mayhew Gravely, both of Richmond, Va., June 23.

James Earle Wheeler, Belleville, Ill., to Miss Catherine Louise Davis of Beloit, Wis., June 18.

Delbert T. Sayter, Aldie, Va., to Miss Martha Garnett Gresham of Newport News, May 15.

Edward A. Yurick, Cleveland, to Miss Mary Josephine Hodock of Byesville, Ohio, June 27.

Thomas Meredith Winn, Covington, Va., to Miss Violet Gary of Kenbridge, June 30.

Roshier W. Miller to Mrs. Sallie Knight Hill, both of Richmond, Va., July 6.

Justin E. McCarthy to Miss Mary McConn, both of Cincinnati, April 5.

Deaths

Francis William Alter ⊕ Toledo, Ohio; Bellevue Hospital Medical College, New York, 1896; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; director and past president of the Toledo Academy of Medicine; past president of the Lucas County Medical Society; medical superintendent of the Alter Eye, Ear, Nose and Throat Hospital; for many years on the staffs of the Mercy Hospital and St. Vincent's Hospital; aged 65, died, July 19, in the Toledo Hospital, of carcinoma of the colon.

Paul J. Gelpi ⊕ New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1896; past president of the Louisiana State Medical Society and the Orleans Parish Medical Society; formerly professor of genito-urinary diseases and cystoscopy, Graduate School of Medicine, Tulane University of Louisiana; on the visiting staff of the Charity Hospital and the Hotel Dieu Hospital; aged 57; died, July 19, in Bay St. Louis, Miss., of chronic myocarditis and arteriosclerosis.

Karl W. Doege ⊕ Marshfield, Wis.; Medical Department of Western Reserve University, Cleveland, 1890; member of the House of Delegates of the American Medical Association in 1910, past president of the State Medical Society of Wisconsin, fellow of the American College of Surgeons; president of the Marshfield Clinic; surgeon in chief at St. Joseph's Hospital; aged 65; died, June 28, of heart disease.

Neal Luther Hoskins ⊕ Detroit; Detroit College of Medicine, 1905, associate professor of medicine at his alma mater; fellow of the American College of Physicians; consulting physician to St. Mary's Hospital; on the adjunct staff in the department of medicine, Harper Hospital; visiting physician to the Detroit Tuberculosis Sanitarium; aged 55; died, July 21, of carcinoma of the sigmoid.

Joseph Angevine Turner, Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1911; member of the Ohio State Medical Association; served during the World War; on the staffs of the Columbus Radium Hospital, White Cross Hospital, St. Ann's Hospital and Grant Hospital; aged 44; died, June 25, of cirrhosis of the liver, hypostatic pneumonia and heart disease.

Frank A. Jacobson, Newburgh, N. Y.; New York Homeopathic Medical College and Hospital, 1888; member of the Medical Society of the State of New York; formerly member of the board of health and board of education; on the staff of St. Luke's Hospital; aged 68; died, July 9, in the Presbyterian Hospital, New York, of carcinoma of the esophagus.

Charles Sumner Holden, Attleboro, Mass.; Harvard University Medical School, Boston, 1883; member of the Massachusetts Medical Society; for ten years member of the state legislature; formerly member of the board of health of Attleboro; aged 76; died, July 3, in the Sturdy Memorial Hospital, of hypertrophy of the prostate and cystitis.

Benjamin James Baldwin, Montgomery, Ala.; Bellevue Hospital Medical College, New York, 1877; member and past president of the Medical Association of the State of Alabama; for twenty-seven years president of the board of education of Montgomery; aged 75; died, July 10, in St. Margaret's Hospital, of acute intestinal obstruction.

Philip Herrin, Villa Grove, Ill.; Barnes Medical College, St. Louis, 1903; member of the Illinois State Medical Society; secretary and past president of the Douglas County Medical Society; veteran of the Spanish-American and World wars; formerly bank president and mayor; aged 54; died, July 18, of cerebral hemorrhage.

Louis Leon Frisque, Chicago; Northwestern University School of Medicine, Chicago, 1911; member of the Illinois State Medical Society; fellow of the American College of Surgeons; on the staff of the Ravenswood Hospital; aged 49; died, July 27, in the Sacred Heart Sanitarium, Milwaukee, of encephalomalacia.

James Bartley Given, Jr. ⊕ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1921; fellow of the American College of Surgeons; on the staffs of the Carson C. Peck Memorial Hospital, Brooklyn Hospital and St. John's Hospital; aged 36; died, July 25, of heart disease.

Sylvan De Nux, Marksville, La.; University of the South Medical Department, Sewanee, Tenn., 1900; member of the Louisiana State Medical Society; member of the state board of health; coroner of Avoyelles Parish; aged 52; died, July 5, in the Baptist Hospital, Alexandria, of septicemia.

Roland Curtin Evans, Leighton, Ala.; University of the South Medical Department, Sewanee, Tenn., 1905; member of the Medical Association of the State of Alabama; veteran of the Spanish-American and World wars; aged 56; died, June 27, in the Colbert County Hospital, Sheffield.

Joseph E. Spatz, Medford, Ore.; Hahnemann Medical College and Hospital, Chicago, 1885; formerly member of the state board of health of Nebraska; for nine years member of the board of education in Fairfield, Neb.; aged 72; died, May 7, of organic heart disease.

George Albertson Parker, Jr., Newton, Pa.; University of Maryland School of Medicine, Baltimore, 1910; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 49; died, July 15, in a hospital at Philadelphia.

Charles A. Hamilton, Waterbury, Conn.; University of Vermont College of Medicine, Burlington, 1886; member of the Connecticut State Medical Society; aged 83; died, July 12, of injuries received when his automobile went over an embankment.

Thomas Collins Stevenson Marshall ⊕ Washington, D. C.; Howard University School of Medicine, Washington, 1883; vice dean emeritus and emeritus professor of pathology at his alma mater; aged 76; died, June 29, of cerebral hemorrhage.

William Franklin Harpel, Chicago; Hahnemann Medical College and Hospital, Chicago, 1905; formerly professor of physiology and biology at his alma mater; aged 75; died, June 10, of chronic myocarditis, prostatitis, cystitis and arteriosclerosis.

Seaborn Jennings Fuller, Magazine, Ark.; University of Louisville (Ky.) School of Medicine, 1891; member of the Arkansas Medical Society; fellow of the American College of Surgeons; aged 63; died, April 7, in Little Rock, of heart disease.

Samuel G. Burkholder, Reading, Pa.; Harvey Medical College, Chicago, 1898; Northwestern University Medical School, Chicago, 1899; member of the Medical Society of the State of Pennsylvania; aged 61; died, May 10, of heart disease.

Joseph Daniel Tuten, Lake Charles, La.; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; member of the Louisiana State Medical Society; on the staff of St. Patrick's Sanitarium; aged 54; died, July 13, of heart disease.

Samuel Streghorn Beakley, San Antonio, Texas; University of Nashville (Tenn.) Medical Department, 1900; member of the State Medical Association of Texas; aged 63; died, July 4, in the Nix Hospital, of acute dilatation of the heart.

Edmund I. Hinkle, Burlington, Ind.; University of Louisville (Ky.) School of Medicine, 1894; member of the Indiana State Medical Association; aged 63; was found dead in his automobile, July 3, of heart disease.

John Conrad Anderson, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1905; member of the Indiana State Medical Association; aged 73; died, July 3, of uremia and chronic nephritis.

Christopher Gadsden Hay, Savannah, Ga.; University of Georgia Medical Department, Augusta, 1885; Confederate veteran; aged 84; died, July 2, of chronic interstitial nephritis and myocardial insufficiency.

James Bell Goddard, Eau Claire, Wis.; Rush Medical College, Chicago, 1888; member of the State Medical Society of Wisconsin; aged 75; died, June 25, in Freeport, Ill., of carcinoma of the throat.

John Sedgwick Dean, Glendale, Calif.; University of Michigan Medical School, Ann Arbor, 1889; aged 68; died, May 6, of sclerosis of the coronary artery, angina pectoris and diabetes mellitus.

Edwin Frank Wood, Rochester, N. Y.; University of Buffalo School of Medicine, 1917; member of the Medical Society of the State of New York; aged 47; died, July 10, of heart disease.

Cornelius C. Vanderbeck, St. Louis; Jefferson Medical College of Philadelphia, 1872; member of the Missouri State Medical Association; aged 80; died, June 15, of cerebral hemorrhage.

William Edward Wright, Fairfield, Ala.; Birmingham Medical College, 1907; member of the Medical Association of the State of Alabama; aged 48; died, July 13, of pulmonary tuberculosis.

Audley Emmet Nelson, Sidney, Iowa; Jefferson Medical College of Philadelphia, 1897; aged 64; was instantly killed, June 13, when the automobile in which he was driving overturned.

John Constantine Bialas ⊕ Utica, N. Y.; Boston University School of Medicine, 1916; on the staff of the Memorial Hospital; aged 39; died, June 28, of periprostatic abscess and embolism.

Robert Perry Jones ⊕ Baton Rouge, La.; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1898; aged 59; died, May 23, of myocarditis and nephritis.

William C. Mitchell, Philadelphia; Jefferson Medical College of Philadelphia, 1893; aged 79; died, June 24, in the Jefferson Hospital, of cerebral hemorrhage and diabetes mellitus.

Robert Patrick, Woodville, Miss.; Medical Department of the University of Louisiana, New Orleans, 1873; aged 86; died, May 28, of hypertrophy of the prostate and nephritic toxemia.

John S. B. Woolford, Roswell, N. M.; University of Maryland School of Medicine, Baltimore, 1896; fellow of the American College of Surgeons; aged 60; died, July 4, of uremia.

Jean Samuel Holloway, Phoenix, Ariz.; Indiana University School of Medicine, Indianapolis, 1911; aged 44; died, June 29, in a hospital at Los Angeles, of hemorrhage of the lungs.

Benjamin F. Armbruster ⊕ Milwaukee; Hospital College of Medicine, Louisville, Ky., 1902; on the staff of St. Luke's Hospital; aged 59; died, July 4, of cerebral hemorrhage.

Charles Clinton Cracraft ⊕ Claysville, Pa.; Jefferson Medical College of Philadelphia, 1883; secretary of the Washington County Medical Society; aged 76; died, May 13.

Henry Whipple Allport, Chicago; Cornell University Medical College, New York, 1899; served during the World War; aged 67; died, July 27, of angina pectoris.

Robert Lee McLellan, Eagle Lake, Texas; Medical Department of the University of Alabama, Mobile, 1897; aged 61; died, July 8, in Smithville, of myocarditis.

Eber Devello McKinley ⊕ Alamogordo, N. M.; Central College of Physicians and Surgeons, Indianapolis, 1904; aged 55; died, May 17, of coronary embolism.

Ira Calvin Hoffman, Aliquippa, Pa.; College of Physicians and Surgeons, Baltimore, 1915; also a druggist; aged 56; died, July 18, of carcinoma of the stomach.

Robert James Haworth, Vancouver, B. C., Canada; University of Manitoba Faculty of Medicine, Winnipeg, Manit., 1892; aged 78; died in March.

Hugh J. Needham, New Albany, Ind.; Pulte Medical College, Homeopathic, Cincinnati, 1881; aged 89; died, June 23, of chronic nephritis.

William Raymer, Beaver Falls, Pa.; Homeopathic Hospital College, Cleveland, 1878; aged 76; died, June 28.

John G. Slappy, Jeffersonville, Ga.; Atlanta Medical College, 1875; aged 78; died, June 27.

Bureau of Investigation

CROXON CREAM

An Alleged Depilatory from Koremlu Antecedents

Readers of this department of The Journal will remember what has been published both recently and some months ago regarding a pernicious depilatory known as "Koremlu," which had for its active ingredient thallium acetate As was pointed out in the last article on Koremlu the number of cases of serious poisoning, with resultant damage suits brought against the exploiters, resulted in Koremlu, Inc, filing a voluntary *petition in bankruptcy*, *listing liabilities over two million dollars* and assets under three dollars

A few months ago the Bureau of Investigation began receiving inquiries regarding a newcomer to the depilatory field, sold under the trade-marked name "Croxon Cream" by Croxon, Inc The address of Croxon, Inc, was Suite 1368, 20 West 43d Street New York City Investigation proved this to be the same office as that occupied by Koremlu, which used the address 11 West 42d Street, the building in which the two concerns were housed running through from 42d Street to 43d Street

It is reported that Croxon was incorporated in January, 1932, with an authorized capital of 2,000 shares of common stock at no par value Its president was given as A W Lublin This, presumably is the same A W Lublin who signed letters for the Koremlu concern as its vice-president

Croxon Cream is advertised in much the same way that Koremlu Cream was advertised In fact the style and illustration used in magazine "copy" of Koremlu and Croxon are almost identical Croxon Cream is sold under the definite claim that it will *permanently* remove hair If one is to believe the booklet on Croxon Cream, "thousands of experiments" were made in the alleged research that led to the discovery of this marvelous preparation To quote from the advertising booklet that goes with the trade package

> "The principle underlying the Croxon treatment is entirely new A combination of gentle chemical reactions *dissolves both hair and its root* [Italics ours—Ed] without injury to the health and vitality of the skin for they are similar to the reaction constantly taking place in all living cells "
>
> "Croxon is the perfect solution to the problem of superfluous hair It proves a simple, positive and permanent method guaranteed to *harmlessly destroy wherever used both hair and root* [Italics ours—Ed] so that no unwanted hair can ever grow there again
>
> " it [Croxon Cream] does not affect anything but the hair and hair root "

At this point our readers may be reminded of the unfortunate fact that drug products sold for cosmetic purposes, and not for the treatment or alleviation of disease, are free from the restrictions imposed by the national Food and Drugs Act That is why cosmetic manufacturers can falsify with impunity in statements accompanying the trade package Referring again to the alleged scientific research on which the creation of Croxon Cream is said to be based, the public is told in a page devoted to the statement that

> Professional ethics forbid the publication of the names of the doctors and scientists who made Croxon possible for your use

Last May, Croxon, Inc wrote to a woman who had inquired about the possible harmfulness of the preparation

> As Croxon Cream is a product of one of the largest hospitals in New York City and the research work has been done by dermatologists and toxicologists connected with the hospital, we do not think any further evidence is necessary '

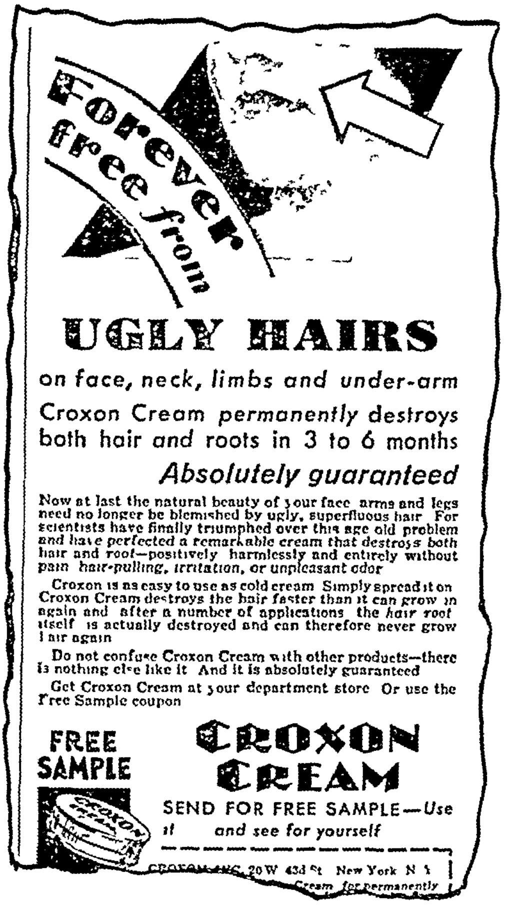
In the same letter Croxon, Inc, answering its correspondent s question as to where the company had obtained her name wrote

> 'As to how we got your name will say that we rent lists of names from manufacturers of cosmetics and other preparations We probably found your name on one of these lists as a good many houses sell or rent their lists of names

As long ago as last May, the National Better Business Bureau wrote to the Bureau of Investigation asking for any information that might be available on Croxon Cream At the same time they stated that they had seen a certificate from Helene Lemberger, Ph D, Department of Biochemistry, New York Post-Graduate Medical School and Hospital, that read as follows

> I hereby certify that the research investigation upon which the formula of Croxon Cream has been based, demonstrates that
>
> (*a*) It contains no compounds that are toxic as embodied in this preparation and when applied as directed
>
> '(*b*) It removes superfluous hair when applied as directed
>
> "(*c*) It prevents the regrowth of the hair when applied as directed over a period of one year
>
> '*It is my understanding that neither this letter, my name, nor the name of this institution will be used in advertising*'

Dr Lemberger's testimonial for Croxon Cream was referred to incidentally in the last article that was published in this department of The Journal on Koremlu Shortly after publication the Bureau of Investigation received a letter from John A Killian, Ph D, Director of the Department of Biochemistry of the Post-Graduate Medical School and Hospital


Forever free from

UGLY HAIRS

on face, neck, limbs and under-arm

Croxon Cream *permanently* destroys both hair *and* roots in 3 to 6 months

Absolutely guaranteed

Now at last the natural beauty of your face arms and legs need no longer be blemished by ugly, superfluous hair For scientists have finally triumphed over this age old problem and have *perfected* a remarkable cream that destroys both hair and root—positively harmlessly and entirely without pain *hair-pulling, irritation, or unpleasant odor*

Croxon is as easy to use as cold cream Simply spread it on Croxon Cream destroys the hair faster than it can *grow* in again and after a number of applications the *hair root* itself is actually destroyed and can therefore never grow hair again

Do not confuse Croxon Cream with other products—there is nothing else like it And it is absolutely guaranteed

Get Croxon Cream at your department store Or use the Free Sample coupon

FREE SAMPLE

CROXON CREAM

SEND FOR FREE SAMPLE—*Use it and see for yourself*

CROXON INC 20 W 43d St New York N Y

Cream for permanently

Reproduction of advertisement of Croxon Cream appearing in recent issues of some national magazines

In his letter Dr Killian stated (1) that Dr Lemberger s work on Croxon Cream was not a part of the business of the laboratory of the Department of Biochemistry, (2) that the use of official stationery for the expression of her opinions was a violation of the rules of the laboratory and (3) that as Dr Lemberger s letter lacked his signature as Director of the Department, it was not an official report

All this made interesting reading, because in the meantime evidence had been received by the Bureau of Investigation that indicated that Dr Killian himself had done work on Croxon Cream It appears that Charles C Johnson, treasurer of Croxon Inc, in talking to someone who had inquired of him regarding the possible toxicity of Croxon Cream, had declared that Croxon Cream could not be poisonous because it had been tested and certified by the Post Graduate Hospital and that Dr Killian had done the work

In acknowledging Dr Killian's letter relative to the unofficial character of Dr Lemberger s testimonial, he was asked to furnish, either direct or through Dr. Lemberger, scientific evidence for the claims Dr. Lemberger had made to the effect that Croxon Cream (1) "removes superfluous hair when applied as directed" and (2) "prevents the regrowth when applied as directed over a period of one year."

Dr. Killian was also asked whether the New York Post-Graduate Medical School and Hospital had, as such, done any work on Croxon Cream or if Dr. Killian himself had done any work on the preparation and, if he had, whether that work was done in his capacity as Director of the Department of Biochemistry of the New York Post-Graduate Medical School and Hospital, or merely as a private chemist. Dr. Killian replied to the questions, thus:

> "Dr. Helene Lemberger is not in this laboratory at the present time and will not return to it. I shall answer the questions concerning the evidence upon which she based her statements in the letter referred to above. Her statement that the product called Croxon Cream removed superfluous hair was based upon observations of guinea-pigs receiving daily applications of the product, and also upon human subjects receiving applications of the cream on arms, legs and in the axillae. Secondly, as far as I can determine from her experimental data, she had, at the time the letter was signed (April 12), no evidence that it will prevent the regrowth of hair when applied as directed over a period of one year.
>
> "In answer to the question asked in your letter to me re Croxon Cream, I wish to say that beginning May 28th, 1932, an investigation of Croxon Cream has been carried on in the Department of Biochemistry under my supervision. The object of this investigation has been to determine (a) whether Croxon Cream will remove hair from experimental animals, and (b) to determine whether Croxon Cream, when applied as a depilatory cream, produces any toxic effect. This investigation has been, since May 28th, a part of the business of the laboratory. No report has been issued to date on our results. When the experiments have been completed to our satisfaction, the results will be published to the medical profession first. In this investigation we are following a plan similar to that adopted for the investigation of Koremlu. Other phases of the investigation of Croxon Cream are being worked out in other laboratories."

From this it will be seen that neither Dr. Lemberger's work nor Dr. Killian's work furnishes evidence for the claim that Croxon Cream "dissolves both hair and its root" so that "no unwanted hair can ever grow there again."

It may not be inappropriate to remind our readers at this point that it was Dr. Killian who furnished the elaborate report for the Scott Paper Company relative to the alleged virtues of "Scot Tissue" as compared with the (also alleged) vices of most of the other toilet papers on the American market.

Because of the close connection, at least in its genesis, between Croxon Cream and Koremlu Cream, it seemed desirable to find out as early as possible whether Croxon Cream might be another thallium acetate preparation. For that reason the A. M. A. Chemical Laboratory was asked to analyze the product. Their report follows:

LABORATORY REPORT

"An original jar of Croxon Cream (Croxon, Inc., 20 West 43d Street, New York), purchased on the open market (Price $10) was submitted to chemical examination.

"The jar contained 94.6 Gm. (approximately 3 ounces) of a cream-colored ointment, almost odorless. Qualitative tests indicated the presence of sodium, zinc and boron compounds, oxygen in the form of peroxide, and petrolatum. Heavy metals (such as mercury, lead, arsenic, antimony, etc.), alkaline-earth metals (such as barium, strontium, calcium and magnesium), chlorides, phenol or salicylic acid, sulphur compounds (including sulphides) were not found. Petrographic examination of the solid material in the ointment revealed a substance similar in the optical-crystalline properties to sodium perborate, zinc peroxide and zinc oxide. Quantitative determinations yielded the following:

Petroleum-benzin extract	68.0 per cent
Residue insoluble in petroleum benzin	31.0 per cent
Ash (750°)	20.4 per cent
Sodium (Na^+)	2.5 per cent
Boron (B)	1.1 per cent
Zinc (Zn^{++})	10.6 per cent
Total titratable oxygen (peroxide oxygen)	2.8 per cent
Titratable oxygen in water insoluble portion	1.3 per cent
These results may be calculated to:	
Sodium perborate ($NaBO_3 \cdot 4H_2O$)	15.0 per cent
Zinc peroxide (ZnO_2)	7.6 per cent
Zinc oxide (ZnO)	6.8 per cent

"From the foregoing, it may be concluded that the product contains essentially 15 per cent of sodium perborate, 7.6 per cent of zinc peroxide, and 6.8 per cent zinc oxide. Zinc peroxide is seldom pure but generally a mixture containing from 45 to 55 per cent zinc oxide. For practical purposes it appears, therefore, that the product consists essentially of approximately 15 per cent sodium perborate and 15 per cent commercial zinc peroxide incorporated in a petrolatum base."

From this it appears that Croxon Cream is essentially a mixture of sodium perborate, zinc oxide and zinc peroxide in a petrolatum base—three ounces (3 oz.) for ten dollars ($10). The amount of petrolatum, sodium perborate, zinc peroxide and zinc oxide found in a ten-dollar jar of Croxon Cream could be purchased at wholesale for less than 10 cents.

While Croxon Cream has none of the viciously dangerous elements found in Koremlu Cream, it is, as every dermatologist will recognize, quite worthless as a depilatory for either the temporary or the permanent removal of hair. What Croxon Cream will do, if rubbed into the skin from one to three times a day over a period of months as recommended, is to bleach the hair. The purchaser is told that it will be necessary to use Croxon Cream for from three to twelve months. As Croxon, Inc., get $10 for a three-ounce jar of Croxon Cream, the ingredients of which probably cost not more than a dime, will it make very much difference to the concern how many disappointed customers it may have if it can only get enough customers started on the three to twelve months' use?

Reverting again to Koremlu: It will be remembered that in the exploitation of Koremlu Cream, the Koremlu concern put out, as an accessory, what they called "Koremlu·Wax." Purchasers of Koremlu Cream who were in a hurry to have the hair removed were urged to purchase the "wax" in addition to the "cream." In the case of Croxon Cream, those who, after purchasing a ten dollar jar and finding after weeks of use that the superfluous hair is as thick as ever, are told to purchase "Croxon Depilatory Powder."

Croxon Depilatory Powder is just another one of the sulphide mixtures. It is described as a dainty, harmless, pleasant and non-irritating product." In spite of a valiant but wholly unsuccessful attempt to cover up its odor with perfume, it smells, in fact, like rotten eggs and decaying cabbage (hydrogen sulphide). As to its harmlessness, it may, like any of the alkaline sulphides, if not used with the greatest of circumspection, not merely remove hair, temporarily, but also remove the skin. It is worth noting, too, that the Croxon booklet states that where the hair has been "burned off" with depilatories, the time over which Croxon Cream must be used will be greatly increased.

On the closing page of the Croxon Cream booklet, Croxon, Inc., publish an alleged guarantee to the effect that those who purchase and use Croxon Cream as directed "will be permanently relieved of all trace of superfluous hair." In this connection, it is worth bringing back to mind the "guarantee" that the Koremlu people published, to the effect that after using from $20 to $240 worth of Koremlu, if you were dissatisfied with the results, the Koremlu people would return your money. As Koremlu, Inc., is bankrupt, with less than $3 in the till and over $2,500,000 owing, how much is the guarantee worth?

Correspondence

INJURY TO FACIAL NERVE IN MASTOID OPERATION

To the Editor:—In mastoid operations the danger of injury to the facial nerve is apparent, and the anesthetist is requested to watch for any twitching of the muscles about the eyes or the face to safeguard this nerve from being injured unawares. With the usual sterile coverings it is very difficult to see the face with much certainty. I have for many years used the sense of touch for this purpose, which is much more certain, and easier of application, by placing the finger at the angle of the mouth on the buccinator muscle.

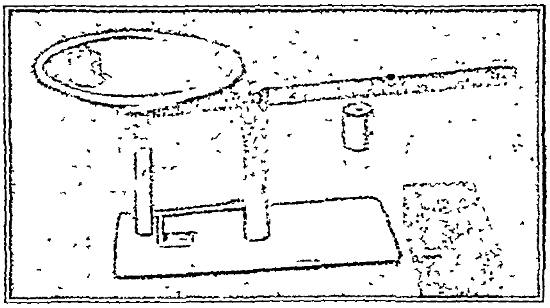
If the facial nerve is touched, contraction of these muscles is detected at once by the palpating finger, however slight the contraction may be.

James G. Poe, M.D., Dallas, Texas.
Baylor University Hospital.

SCALES FOR DIABETIC PATIENTS

To the Editor:—Charity patients in diabetic clinics seldom can afford to buy scales, yet weighed diets are conducive and at times indispensable to the treatment of diabetes. To supply this want, some of my patients in the diabetic section of the Falk Clinic, conducted by the University of Pittsburgh, constructed balance scales with metal picked out of the scrap piles, at the initial cost of 2½ cents. They are assembled by unemployed men and are calibrated to weigh within half a gram, by an expert, again unemployed.

A number of these scales were finished, as shown in the accompanying illustration, and distributed to deserving patients.



Balance for diabetic patients.

Beneficial results immediately became apparent, and in addition to the increased interest on the part of the entire group in their dietetic problems, patients were provided with an accurate means of weighing their total caloric intake regardless of their financial condition.

The social service department of the clinic has been requested to follow up those patients who have received such mechanical aids so that each set of scales will do maximum duty.

With the thought that others might wish to use this plan in solving similar problems, the matter is presented here

J. West Mitchell, M.D., Sewickley, Pa.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request.

ENDOCARDITIS AFTER SCARLET FEVER

To the Editor:—In January of this year my son, aged 9 years, contracted scarlet fever This left an endocarditis as a sequela In spite of bed rest, a wholesome appetite and diet, and outward appearances of health, he persists in having a half degree of fever almost daily, and the systolic mitral lesion is gradually becoming more accentuated For two weeks following tonsillectomy his condition seemed aggravated, his temperature being elevated from 1 to 1.5 degrees, and his pulse was correspondingly accelerated. I have had him on salicylates, streptococcus vaccines, iron tonics and sun baths, but this low grade process continues in spite of all effort and his apparent well being I will be pleased to learn of any more therapy you might recommend in this case Please omit name.

M.D , Iowa.

Answer.—It is possible that the endocarditis described is the result of a complicating rheumatic fever. This is an important distinction to make because joint pains and rheumatic nodules may aid in determining the state of activity of the process. With either causation the child's weight curve at this stage of the disease would be a helpful index of activity or the nonexistence of the latter. As the query suggests, the temperature curve is important also; but this should be recorded in the absence of salicylates, to be significant. Even then it is difficult to interpret a fever of half a degree this long after the onset of the child's illness. Opinions may be had on both sides of this question, but many clinicians would favor disregarding this amount of fever in the absence of salicylate medication in a hild of this age. An electrocardiograph tracing for evidences of disturbed conduction not detectable clinically in any other way would be of considerable significance, if positive.

If the boy is gaining a little in weight and shows no evidence of active rheumatic fever or of active endocarditis, other than the half degree of fever, and the electrocardiographic tracing is normal, discontinuation of medication and a gradual resumption of activity for the patient may be recommended. As Dr. Herrick and others have pointed out, physicians have sometimes erred in the past in making more of an invalid out of such a patient than the necessities of the case demand.

The existence of evidence of activity on any of the scores mentioned would justify the continuation of bed rest. Rest and good food and other general hygienic measures are the most valuable parts of therapy of the active stage. The value of other forms of treatment remains highly problematic. The salicylates are favored if joint involvement is present, and some believe in their use for the endocarditis itself.

FILARIASIS OR ABNORMAL LYMPH CHANNELS

To the Editor—A woman, aged 26, a nullipara, has a large edema of the right foot ascending and diminishing in size till just below the knee No discoloration, redness or pain is present, nor is there impaired arterial circulation. The Wassermann test is negative. Blood counts are normal. There is no x-ray evidence of a pathologic condition of the bone and no sign of tuberculosis The condition suggests a stasis in the lymphatics, although no enlarged lymph glands can be felt anywhere The swelling has existed since her childhood, about twenty years, but has increased during the last half year. Several years ago in France she received punctate cauterizations at the metatarsophalangeal joints. She states that these resulted in some benefit at the time. Up to her sixth year she lived in French Guiana, and afterward in France. I was advised to look for filariae. Blood smears taken at different hours of the day or night did not show any microfilariae. I was further advised to make a Kondoleon operation and to look for filariae in biopsy specimens. Milroy's disease, I think, can be excluded, as this case is unilateral. What other conditions would you consider? If filariasis, what would be the treatment? I read about injections with chenopodium oil. What is the dosage and where can it be obtained sterilized? Is there any authority in this country on this subject to whom I could write for information? Please omit name.

M.D., California.

Answer.—The case, as outlined, suggests two diagnostic possibilities: (1) filarial elephantiasis, and (2) congenital abnormality of lymph or venous efferents from the right leg and foot. The history of residence for the first six years of life in an endemic filarial district, with edema coming on at the end of this time, is strongly in favor of filarial origin. This origin having been twenty years ago, one would expect the adult filariae to have died long since. The patient has presumably not been exposed to reinfection during the past twenty years. One would therefore expect that organic damage originated in the customary manner in the period of active parasitization and that the appearance of organic lymph obstruction and elephantiasis was coincident with disappearance of live adult filariae and microfilariae in the circulating blood. Under such conditions the proper treatment is surgical, a modified Kondoleon operation being performed in an effort to divert the lymph drainage into the deeper channels around the great blood vessels. The operation should be preceded by one or two weeks of elevation and constant pressure. As a routine, thick blood smears should be made at two hourly intervals for twenty-four hours and searched thoroughly for microfilariae, in the remote possibility of their still being present. Drug treatment is useless. Roentgenograms of the soft tissues around, above and below the knee should be taken in two planes in the effort to demonstrate calcified adult filariae. If these are found, their surgical removal should be undertaken before Kondoleon drainage is attempted. O'Connor, Golden and Auchincloss (*Am. J. Roentgenol.* **23**:494 [May] 1930) have demonstrated the value of this procedure.

Endemic elephantiasis is seen occasionally with no exposure to filaria-bearing mosquitoes but can be reduced to terms of mechanical obstruction from trauma, masses, earlier phlebitis or cellulitis, or streptococcus infection.

DELAY IN SPEECH FUNCTION

To the Editor—What, if anything, can be done to develop the talking function of a child? The patient is a boy, aged 3 years, who seems to be normal in every way, with no defect of tongue, lips or vocal cords. He just does not talk. The grandparents are much worried.

Alvah Stone, M.D., Roanoke, Va.

Answer.—There are a number of factors which cause delay in development of speech. It is well known that a child who is congenitally deaf does not develop normally. In children in whom the function of hearing is diminished, the acquirement of speech is also delayed. It may be assumed that in some children there is delayed development of the speech center and association tracts There are also unexplained instances in which children learn to walk late and to talk the third or fourth year Ultimately, however, some of them prove to have high degrees of intelligence Not infrequently, boys in particular learn to talk as late as the third year, and sometimes the period of complete speech development lasts much longer The explanation of these cases is probably to be sought in a temporary inhibition of normal speech development In general, excluding the exceptions already noted, the onset of speech parallels the development of intelligence

So far as remedial treatment is concerned, if the child has normal hearing and intelligence, the ability to speak will develop spontaneously and naturally Attempts to force the child at an early age might cause mental overstimulation and nervousness If the child has a defect in hearing or intelligence, special methods of training should be begun later in childhood, when the nature of the defect is established

RECURRENT ECZEMA

To the Editor —Will you please advise me as to treatment of a skin condition in a man aged 55, who has a generalized itching, which is worse at night The condition has been present for about eight months and so far has failed to respond to every type of treatment used Physical examination revealed a normal state of nutrition and one or two carious teeth perhaps infected The skin was reddened and the rash was of a fine papular nature and seemed to be just beneath the epidermis The rash was more pronounced on the chest and upper extremity The condition has been diagnosed by one skin specialist as recurrent eczema The blood Wassermann test was negative on two examinations Urinalysis was negative Chemical examination of the blood revealed no abnormalities The treatment has been varied from the use of ointments containing salicylic acid, benzoic acid, tar ammoniated mercury, balsam of peru, sulphur precipitate calamine lotion camphor, menthol, phenol, and about every other antipruritic, to neoarsphenamine, iodides, metaphen and intramuscular injections of nonspecific proteins and intravenous treatment with mercury The diet has been regulated, one type of food at a time being omitted without noticeable results The patient s living habits have been checked The patient has been seen and treated by many different physicians including skin specialists, and to date his condition remains the same as when I first saw him about Aug 1, 1931 Please omit name

M D , Indiana

Answer —Assuming that the case is one of recurrent eczema, it would seem that the condition has probably been intensified by some of the applications and injections employed While stimulating applications are indicated in certain types of eczema, the condition described might be adversely affected by some of the agents used locally, particularly ammoniated mercury and precipitated sulphur, while the neoarsphenamine and mercury preparation employed intravenously might likewise have an undesirable effect

In a case of this type every effort should be made to discover external or internal factors, as outlined in any standard textbook on dermatology, that might be responsible for the eruption As a rule, a case of this type will do well with the use of so called colloid baths, such as oatmeal water to which sodium bicarbonate has been added Local applications should be bland, employing lotions or ointments or both The intravenous injection of sodium thiosulphate, as employed in the treatment of postarsenical exfoliative dermatitis is often of use in cases of this type

NEURITIS AND ARTHRITIS

To the Editor —I have a patient a dentist aged 27 who complains of pains resembling those of neuritis which are centered about the shoulders posteriorly, in the neck posteriorly and at times in the latissimus dorsi at about the level of the ninth and tenth ribs These pains are evidently precipitated by his work as they tend to pass off on days when he does not go to the office and are quite pronounced on his hard and long working days The areas are quite painful at night on his bad days A careful history and a physical examination do not suggest an etiologic agent to my satisfaction The erythrocytes number 4 660 000 leukocytes 7 000, the hemoglobin is 90 the urine is normal the Wassermann reaction is negative a prostatic smear is negative although about two years ago he had a urethritis with purulent discharge which was pronounced gonorrheal by a competent urologist Is there such a diagnosis or etiology as occupational neuritis ? As he gets no exercise I have advised a generous amount of exercise I should be grateful for any discussion you may make

M D Alabama

Answer —The diagnosis concerns brachial neuritis cervical arthritis, fibrositis and myositis The etiologic factors are postural, infectious, traumatic, exposure and metabolic Treatment includes removal of any foci of infection, especially in the teeth tonsils gastro intestinal and genito-urinary tracts, rest, avoidance of long continued strain, and physical therapy, including gentle massage radiant heat and diathermy any of these to be discontinued if they cause pain A support such as a cotton collar should be beneficial Patients with this condition should avoid drafts and cold air and should keep the tissues warm day and night Pure brachial neuritis is rare Symptomatic neuritis is due to arthritis of the cervical spine There is a type of brachial neuritis peculiar to drivers of automobiles in whom the attack usually affects the side next to the open window Some authorities state that diathermy and infrared rays are unsuccessful and that massage may be harmful Exposure to small doses of the roentgen ray for ten minutes twice a week for a month have been advised Radiant therapy has also been recommended

MULTIPLE THROMBI IN VESSELS OF LEGS

To the Editor —A man, aged 60, with moderate generalized arteriosclerosis, auricular fibrillation of at least three years duration, repeated blood pressure readings averaging 170 systolic and 90 diastolic, the urine showing one plus albumin and a moderate amount of casts, has had three attacks each of "cardiac indigestion," and thrombus formation in the lower limbs twice on the left and once on the right, during the past five years The last occlusion, which occurred twelve weeks ago, was the worst, and exhibited typical signs of femoral artery plugging, with absent popliteal pulsation, severe pain, coldness, cyanotic pallor of the leg and foot, and sensory and motor diminution Since then a gradual improvement has ensued, with residuals at this time consisting of cyanosis rubor on dependence, pain requiring a narcotic about twice daily, diminution of sensory apperception in the foot up to the ankle, and complete foot drop (paralysis of the anterior tibial muscle group) Treatment has embraced keeping the foot at right angles to the leg, massage, continuous heat and galvanic stimulation I have been informed that a chemical periarterial sympathectomy would benefit this condition The only reference available is the abstract in The Journal, Oct 3, 1931, pages 1039 1040 Reception of the details of this procedure would be appreciated especially the method and duration of application of the solutions whether or not a neutralizing solution is required, and the contraindications Any comment as to this treatment, or any other treatment for this possible Buerger s disease, will be appreciated Please omit name

M D , Michigan

Answer —It is not altogether certain from the history just what has really taken place The possibility that the arterial occlusion in each case was due to an embolus must be considered

Such an embolus might arise from a mildly active endocarditis, but five years is a long history for such a condition However, emboli can originate in a heart the seat of a very mild infection, or where no active infection can be proved Other sources are possible, as the loosening of small vegetations originating on plaques of the aorta

A thrombosis of the arteries on each of the occasions is also a possibility For some reason not known, such thromboses have been becoming more frequent during the past few years They are frequently associated with some mild infection or occur during convalescence, but they may occur suddenly without any proved cause

The case should be thoroughly reviewed with these two possibilities in mind, and especially with the view of ruling out an active infection of the heart

Buerger's disease would seem to be much less likely If it is present, any so called chemical periarterial sympathectomy would not be advisable at the time It is of unproved value and offers possibilities of danger It is just as well to wait and watch the results of such procedures on other physician's patients In a proved Buerger's disease, a ganglionectomy is often of value, but it would not be advisable in this case A great deal can be done in cases of Buerger s disease by giving the patient 4 or 5 liters of Ringer's solution daily, or by intravenous injections of a hypertonic salt solution, as 150 cc. of a 5 per cent solution every second day The purine base diuretics are of assistance in some cases Fever therapy is of value but should not be used in this case, nor should the hypertonic salt solution Theobromine in some form could be tried, as could the Ringer's solution starting with 1 or 2 liters and increasing the amount if tolerated well

TREATMENT OF SYPHILIS AND EXFOLIATIVE DERMATITIS

To the Editor —1 An ampule containing sodium dimethylarsenate $10\frac{8}{10}$ grains (0 7 Gm) and mercuric oxycyanide one twelfth grain (0 0006 Gm) in 5 cc of sterile water has been offered me for intravenous injection in the treatment of syphilis Please comment on its use 2 What is the method of hastening the clearing of exfoliative dermatitis after intravenous injection of neoarsphenamine? 3 Does mercury intravenously or cyanide 1 per cent 1 cc , produce exfoliative dermatitis, or does bismuth? Please omit name

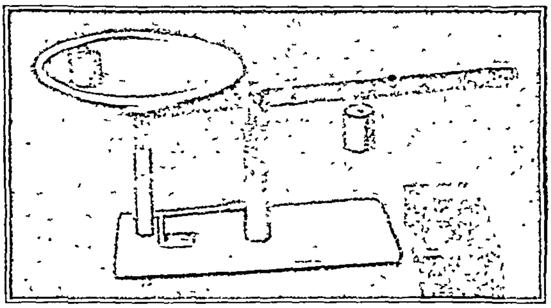
M D , California

Answer —1 Various combinations of sodium and arsenic are used in the treatment of syphilis When arsphenamine is neutralized with sodium hydroxide the disodium salt of arsphenamine (dihydrochloride of 3 diamine-4 dihydroxyarsenobenzene) is formed Sodium cacodylate (sodium dimethylarsenate) was at one time advocated for the treatment of early

SCALES FOR DIABETIC PATIENTS

To the Editor:—Charity patients in diabetic clinics seldom can afford to buy scales, yet weighed diets are conducive and at times indispensable to the treatment of diabetes. To supply this want, some of my patients in the diabetic section of the Falk Clinic, conducted by the University of Pittsburgh, constructed balance scales with metal picked out of the scrap piles, at the initial cost of 2½ cents. They are assembled by unemployed men and are calibrated to weigh within half a gram, by an expert, again unemployed.

A number of these scales were finished, as shown in the accompanying illustration, and distributed to deserving patients.



Balance for diabetic patients.

Beneficial results immediately became apparent, and in addition to the increased interest on the part of the entire group in their dietetic problems, patients were provided with an accurate means of weighing their total caloric intake regardless of their financial condition.

The social service department of the clinic has been requested to follow up those patients who have received such mechanical aids so that each set of scales will do maximum duty.

With the thought that others might wish to use this plan in solving similar problems, the matter is presented here.

J. West Mitchell, M.D., Sewickley, Pa.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ENDOCARDITIS AFTER SCARLET FEVER

To the Editor:—In January of this year my son, aged 9 years, contracted scarlet fever. This left an endocarditis as a sequela. In spite of bed rest, a wholesome appetite and diet, and outward appearances of health, he persists in having a half degree of fever almost daily, and the systolic mitral lesion is gradually becoming more accentuated For two weeks following tonsillectomy his condition seemed aggravated, his temperature being elevated from 1 to 1.5 degrees, and his pulse was correspondingly accelerated. I have had him on salicylates, streptococcus vaccines, iron tonics and sun baths, but this low grade process continues in spite of all effort and his apparent well being. I will be pleased to learn of any more therapy you might recommend in this case. Please omit name.

M.D , Iowa.

Answer.—It is possible that the endocarditis described is the result of a complicating rheumatic fever. This is an important distinction to make because joint pains and rheumatic nodules may aid in determining the state of activity of the process. With either causation the child's weight curve at this stage of the disease would be a helpful index of activity or the nonexistence of the latter. As the query suggests, the temperature curve is important also; but this should be recorded in the absence of salicylates, to be significant. Even then it is difficult to interpret a fever of half a degree this long after the onset of the child's illness. Opinions may be had on both sides of this question, but many clinicians would favor disregarding this amount of fever in the absence of salicylate medication in a child of this age. An electrocardiograph tracing for evidences of disturbed conduction not detectable clinically in any other way would be of considerable significance, if positive.

If the boy is gaining a little in weight and shows no evidence of active rheumatic fever or of active endocarditis, other than the half degree of fever, and the electrocardiographic tracing is normal, discontinuation of medication and a gradual resumption of activity for the patient may be recommended. As Dr. Herrick and others have pointed out, physicians have sometimes erred in the past in making more of an invalid out of such a patient than the necessities of the case demand.

The existence of evidence of activity on any of the scores mentioned would justify the continuation of bed rest. Rest and good food and other general hygienic measures are the most valuable parts of therapy of the active stage. The value of other forms of treatment remains highly problematic. The salicylates are favored if joint involvement is present, and some believe in their use for the endocarditis itself.

FILARIASIS OR ABNORMAL LYMPH CHANNELS

To the Editor:—A woman, aged 26, a nullipara, has a large edema of the right foot ascending and diminishing in size till just below the knee. No discoloration, redness or pain is present, nor is there impaired arterial circulation. The Wassermann test is negative. Blood counts are normal. There is no x-ray evidence of a pathologic condition of the bone and no sign of tuberculosis The condition suggests a stasis in the lymphatics, although no enlarged lymph glands can be felt anywhere The swelling has existed since her childhood, about twenty years, but has increased during the last half year. Several years ago in France she received punctate cauterizations at the metatarsophalangeal joints. She states that these resulted in some benefit at the time. Up to her sixth year she lived in French Guiana, and afterward in France. I was advised to look for filariae. Blood smears taken at different hours of the day or night did not show any microfilariae. I was further advised to make a Kondoleon operation and to look for filariae in biopsy specimens. Milroy's disease, I think, can be excluded, as this case is unilateral What other conditions would you consider? If filariasis, what would be the treatment? I read about injections with chenopodium oil. What is the dosage and where can it be obtained sterilized? Is there any authority in this country on this subject to whom I could write for information? Please omit name.

M.D., California.

Answer.—The case, as outlined, suggests two diagnostic possibilities: (1) filarial elephantiasis, and (2) congenital abnormality of lymph or venous efferents from the right leg and foot. The history of residence for the first six years of life in an endemic filarial district, with edema coming on at the end of this time, is strongly in favor of filarial origin. This origin having been twenty years ago, one would expect the adult filariae to have died long since. The patient has presumably not been exposed to reinfection during the past twenty years. One would therefore expect that organic damage originated in the customary manner in the period of active parasitization and that the appearance of organic lymph obstruction and elephantiasis was coincident with disappearance of live adult filariae and microfilariae in the circulating blood. Under such conditions the proper treatment is surgical, a modified Kondoleon operation being performed in an effort to divert the lymph drainage into the deeper channels around the great blood vessels. The operation should be preceded by one or two weeks of elevation and constant pressure. As a routine, thick blood smears should be made at two hourly intervals for twenty-four hours and searched thoroughly for microfilariae, in the remote possibility of their still being present. Drug treatment is useless. Roentgenograms of the soft tissues around, above and below the knee should be taken in two planes in the effort to demonstrate calcified adult filariae. If these are found, their surgical removal should be undertaken before Kondoleon drainage is attempted. O'Connor, Golden and Auchincloss (*Am. J. Roentgenol.* 23:494 [May] 1930) have demonstrated the value of this procedure.

Endemic elephantiasis is seen occasionally with no exposure to filaria-bearing mosquitoes but can be reduced to terms of mechanical obstruction from trauma, masses, earlier phlebitis or cellulitis, or streptococcus infection.

DELAY IN SPEECH FUNCTION

To the Editor:—What, if anything, can be done to develop the talking function of a child? The patient is a boy, aged 3 years, who seems to be normal in every way, with no defect of tongue, lips or vocal cords. He just does not talk. The grandparents are much worried.

Alvah Stone, M.D., Roanoke, Va.

Answer.—There are a number of factors which cause delay in development of speech. It is well known that a child who is congenitally deaf does not develop normally. In children in whom the function of hearing is diminished, the acquirement of speech is also delayed. It may be assumed that in some children there is delayed development of the speech center and association tracts. There are also unexplained instances in which children learn to walk late and to talk the third or fourth year. Ultimately, however, some of them prove to have high degrees of intelligence. Not infrequently, boys in particular learn to talk as late as the third year, and sometimes the period of complete speech development lasts much longer. The explanation of these cases is probably to be sought in a temporary inhibition of normal speech development. In general, excluding the exceptions already noted, the onset of speech parallels the development of intelligence.

So far as remedial treatment is concerned, if the child has normal hearing and intelligence, the ability to speak will develop spontaneously and naturally. Attempts to force the child at an early age might cause mental overstimulation and nervousness. If the child has a defect in hearing or intelligence, special methods of training should be begun later in childhood, when the nature of the defect is established.

RECURRENT ECZEMA

To the Editor:—Will you please advise me as to treatment of a skin condition in a man, aged 55, who has a generalized itching, which is worse at night. The condition has been present for about eight months and so far has failed to respond to every type of treatment used. Physical examination revealed a normal state of nutrition and one or two carious teeth, perhaps infected. The skin was reddened and the rash was of a fine papular nature and seemed to be just beneath the epidermis. The rash was more pronounced on the chest and upper extremity. The condition has been diagnosed by one skin specialist as recurrent eczema. The blood Wassermann test was negative on two examinations. Urinalysis was negative. Chemical examination of the blood revealed no abnormalities. The treatment has been varied from the use of ointments containing salicylic acid, benzoic acid, tar, ammoniated mercury, balsam of peru, sulphur precipitate, calamine lotion, camphor, menthol, phenol, and about every other antipruritic, to neoarsphenamine, iodides, metaphen and intramuscular injections of nonspecific proteins and intravenous treatment with mercury. The diet has been regulated, one type of food at a time being omitted without noticeable results. The patient's living habits have been checked. The patient has been seen and treated by many different physicians, including skin specialists, and to date his condition remains the same as when I first saw him about Aug. 1, 1931. Please omit name.

M.D., Indiana.

Answer.—Assuming that the case is one of recurrent eczema, it would seem that the condition has probably been intensified by some of the applications and injections employed. While stimulating applications are indicated in certain types of eczema, the condition described might be adversely affected by some of the agents used locally, particularly ammoniated mercury and precipitated sulphur, while the neoarsphenamine and mercury preparation employed intravenously might likewise have an undesirable effect.

In a case of this type every effort should be made to discover external or internal factors, as outlined in any standard textbook on dermatology, that might be responsible for the eruption. As a rule, a case of this type will do well with the use of so called colloid baths, such as oatmeal water to which sodium bicarbonate has been added. Local applications should be bland, employing lotions or ointments or both. The intravenous injection of sodium thiosulphate, as employed in the treatment of post-arsenical exfoliative dermatitis, is often of use in cases of this type.

NEURITIS AND ARTHRITIS

To the Editor:—I have a patient, a dentist, aged 27, who complains of pains resembling those of neuritis which are centered about the shoulders posteriorly, in the neck posteriorly and at times in the latissimus dorsi at about the level of the ninth and tenth ribs. These pains are evidently precipitated by his work, as they tend to pass off on days when he does not go to the office and are quite pronounced on his hard and long working days. The areas are quite painful at night on his bad days. A careful history and a physical examination do not suggest an etiologic agent to my satisfaction. The erythrocytes number 4 660 000, leukocytes 7 000, the hemoglobin is 90, the urine is normal, the Wassermann reaction is negative, a prostatic smear is negative, although about two years ago he had a urethritis with purulent discharge, which was pronounced gonorrheal by a competent urologist. Is there such a diagnosis or etiology as "occupational neuritis"? As he gets no exercise, I have advised a generous amount of exercise. I should be grateful for any discussion you may make.

M.D., Alabama.

Answer.—The diagnosis concerns brachial neuritis, cervical arthritis, fibrositis and myositis. The etiologic factors are postural, infectious, traumatic, exposure and metabolic. Treatment includes removal of any foci of infection, especially in the teeth, tonsils, gastro-intestinal and genito-urinary tracts, rest, avoidance of long continued strain, and physical therapy, including gentle massage, radiant heat and diathermy, any of these to be discontinued if they cause pain. A support such as a cotton collar should be beneficial. Patients with this condition should avoid drafts and cold air and should keep the tissues warm day and night. Pure brachial neuritis is rare. Symptomatic neuritis is due to arthritis of the cervical spine. There is a type of brachial neuritis peculiar to drivers of automobiles, in whom the attack usually affects the side next to the open window. Some authorities state that diathermy and infra-red rays are unsuccessful and that massage may be harmful. Exposure to small doses of the roentgen ray for ten minutes twice a week for a month have been advised. Radiant therapy has also been recommended.

MULTIPLE THROMBI IN VESSELS OF LEGS

To the Editor:—A man, aged 60, with moderate generalized arteriosclerosis, auricular fibrillation of at least three years' duration, repeated blood pressure readings averaging 170 systolic and 90 diastolic, the urine showing one plus albumin and a moderate amount of casts, has had three attacks each of "cardiac indigestion" and thrombus formation in the lower limbs, twice on the left and once on the right, during the past five years. The last occlusion, which occurred twelve weeks ago, was the worst and exhibited typical signs of femoral artery plugging, with absent popliteal pulsation, severe pain, coldness, cyanotic pallor of the leg and foot, and sensory and motor diminution. Since then a gradual improvement has ensued, with residuals at this time consisting of cyanosis, rubor on dependence, pain requiring a narcotic about twice daily, diminution of sensory apperception in the foot up to the ankle, and complete foot drop (paralysis of the anterior tibial muscle group). Treatment has embraced keeping the foot at right angles to the leg, massage, continuous heat and galvanic stimulation. I have been informed that a chemical periarterial sympathectomy would benefit this condition. The only reference available is the abstract in The Journal, Oct. 3, 1931, pages 1039-1040. Reception of the details of this procedure would be appreciated, especially the method and duration of application of the solutions, whether or not a neutralizing solution is required, and the contraindications. Any comment as to this treatment, or any other treatment for this possible Buerger's disease will be appreciated. Please omit name.

M.D., Michigan.

Answer.—It is not altogether certain from the history just what has really taken place. The possibility that the arterial occlusion in each case was due to an embolus must be considered.

Such an embolus might arise from a mildly active endocarditis, but five years is a long history for such a condition. However, emboli can originate in a heart the seat of a very mild infection, or where no active infection can be proved. Other sources are possible, as the loosening of small vegetations originating on plaques of the aorta.

A thrombosis of the arteries on each of the occasions is also a possibility. For some reason not known, such thromboses have been becoming more frequent during the past few years. They are frequently associated with some mild infection or occur during convalescence, but they may occur suddenly without any proved cause.

The case should be thoroughly reviewed with these two possibilities in mind, and especially with the view of ruling out an active infection of the heart.

Buerger's disease would seem to be much less likely. If it is present, any so-called chemical periarterial sympathectomy would not be advisable at the time. It is of unproved value and offers possibilities of danger. It is just as well to wait and watch the results of such procedures on other physician's patients. In a proved Buerger's disease, a ganglionectomy is often of value, but it would not be advisable in this case. A great deal can be done in cases of Buerger's disease by giving the patient 4 or 5 liters of Ringer's solution daily, or by intravenous injections of a hypertonic salt solution, as 150 cc. of a 5 per cent solution every second day. The purine base diuretics are of assistance in some cases. Fever therapy is of value but should not be used in this case, nor should the hypertonic salt solution. Theobromine in some form could be tried, as could the Ringer's solution, starting with 1 or 2 liters and increasing the amount if tolerated well.

TREATMENT OF SYPHILIS AND EXFOLIATIVE DERMATITIS

To the Editor:—1. An ampule containing sodium dimethylarsenate $10\frac{8}{10}$ grains (0.7 Gm.) and mercuric oxycyanide one-twelfth grain (0.0006 Gm.) in 5 cc. of sterile water has been offered me for intravenous injection in the treatment of syphilis. Please comment on its use. 2. What is the method of hastening the clearing of exfoliative dermatitis after intravenous injection of neoarsphenamine? 3. Does mercury intravenously or cyanide 1 per cent, 1 cc., produce exfoliative dermatitis, or does bismuth? Please omit name.

M.D., California.

Answer.—1. Various combinations of sodium and arsenic are used in the treatment of syphilis. When arsphenamine is neutralized with sodium hydroxide, the disodium salt of arsphenamine (dihydrochloride of 3 diamine-4 dihydroxyarsenobenzene) is formed. Sodium cacodylate (sodium dimethylarsenate) was at one time advocated for the treatment of early syphilis but has been found inefficient and its use has been abandoned. The mixture of sodium dimethylarsenate with mercuric oxycyanide is another instance of a polypharmaceutic combination that offers no advantage in the treatment of syphilis. It is far better to use the standard method of administering arsphenamine or neoarsphenamine intravenously and mercury or bismuth compounds intramuscularly.

2. Exfoliative dermatitis after intravenous injection of neoarsphenamine will involute more rapidly when sodium thiosulphate in doses up to 1 Gm. is given intravenously.

3. Mercury compounds have in rare instances produced an exfoliative dermatitis. Pinard and Marassi (*Bull. et mém. Soc. méd. d. hôp. de Paris* **46:**1434 [Nov. 3] 1922) have reported an exfoliative dermatitis after intramuscular injections of bismuth compounds.

POSTINFLUENZAL PLEURAL EFFUSION

To the Editor:—A girl, aged 6 years, had influenza five weeks ago, followed by a right sided pleural exudation proved by roentgen examination, which I opened by intercostal paracentesis, with closed drainage under fluid. I emptied about 2 quarts at the time of the operation, which was done under local anesthesia, and there has been constant drainage since. Her temperature remained normal for about ten days and with decrease of drainage I tried to leave the tube out, but temperature ran up to 103 F., so I replaced the tube with abundant gauze to catch the discharge, which is yellowish green, sour-smelling pus. The temperature receded to normal again with occasional evening exacerbations to 99.4, returning to normal by morning. I changed the tube two days ago, yet the temperature comes up to 102 in the afternoon and down to near normal, 99.4, in the morning. Her appetite is only fair. The bowels are kept open with agarol I tempt her with a nourishing diet. I administer syrup of ferrous iodide 5 drops three times a day, and also a tonic of iron, quinine and strychnine, which I give to increase the appetite; I also give her viosterol and plenty of fresh air Within the last day or so there has developed a slight cough, not irritating or annoying, without expectoration. Could the tube cause this? She seems happy and comfortable and does not complain of any especial pain or soreness. I felt that the drainage tube should remain as long as a discharge persists and that the general tonics, food and fresh air as now outlined should be continued, but felt that perhaps something else could be suggested. Do you advise irrigating with surgical solution of chlorinated soda, as has been suggested by some? After three weeks, should the tube be removed and nature allowed to take care of the secretion? Would a mixed bacterin or serum be indicated or beneficial? The family is poor and had to remove the baby home after five days' hospitalization. Any suggestions will be gratefully received. Please omit name.

M.D., Oklahoma.

Answer.—A postinfluenzal pleural effusion in a child is usually pyogenic in origin, but a tuberculous pleuritis should be excluded if possible if the condition does not respond typically to adequate drainage. A Pirquet test is of value in case of a child. Demonstration of tubercle bacilli in the exudate is proof of a tuberculous infection, but failure to find them does not exclude this condition.

Adequate drainage is the first prerequisite to healing of an ordinary empyema and also of a tuberculous empyema secondarily infected with pyogenic organisms. Irrigation, preferably with surgical solution of chlorinated soda by the closed method or through a small open wound, is preferable to wide open drainage as long as the empyema cavity is of any size. It can be measured by filling it with saline solution and its extent can be visualized by means of a roentgenogram made with a 15 per cent sodium bromide contrast medium. Drainage should be such as to keep the cavity completely empty of pus all the time until it is obliterated.

General supportive measures as outlined are helpful, but complete continuous drainage is essential to a cure.

LOCAL ANESTHETIC FOR TYMPANIC PUNCTURE

To the Editor:—What is the most satisfactory local anesthetic to be used for tympanic puncture? Please omit name.

M.D., New Jersey.

Answer.—For some years, many otologists have used equal parts of cocaine, phenol and menthol instilled in the ear with a medicine dropper and allowed to flow against the tympanic membrane in order to give a local anesthesia. Others have used equal parts of phenol, menthol and oil of eucalyptus. It is doubtful whether the cocaine has much effect, because it does not seem to anesthetize through unbroken epithelium. The phenol and menthol, however, in concentrated solution, do have a benumbing effect on the epidermis. So far as we are aware, no local application gives a perfect anesthesia. Many years ago, Professor Neumann of Vienna suggested infiltrating the sensory nerves of the drum membrane with an injection of dilute procaine solution in the roof of the auditory canal in its inner third. The entrance of the needle is so painful that it probably is not preferable to a direct myringotomy without local anesthesia. A perfectly satisfactory local anesthesia for tympanic puncture is still to be sought. Whenever possible, the administration of general anesthesia is satisfactory and of short duration, especially if nitrous oxide or ethylene is employed.

USE OF CATHETERS IN CYSTITIS WITH PROSTATIC INFLAMMATION

To the Editor:—A man, aged 67, with a history of old gonococcal infection in youth, began with polyuria, and nycturia with strangury, three or four years ago. Cystoscopic examination revealed an atrophy of the prostate, and a retention catheter instead of suprapubic cystostomy was used for drainage on account of the surgical risk involved. Violent reactions occurred four or five days after, possibly urethral fever or renal crisis, and the patient was sent home a week later, having drained about two weeks. Catheterization (retention) was further instituted at home. This was stopped a day later on account of a purulent discharge due to a catheteral irritation. This catheter given the patient by the hospital was incidentally too hard and over a No. 16 French and probably was not changed for one week. At the present time the patient has strangury with concomitant loss of anal sphincteric control, and I am thinking seriously of resuming urethral catheterization either by the retention method or three times daily. Kindly state your opinion as to either method of catheterization in a subject with a guarded surgical risk. Does catheter irrigation through the urethra result in improvement of prostatic edema in hypertrophy as is shown by suprapubic drainage instituted at Mayo's? Does it give any benefit other than drainage by enlarging the lumen of the prostatic urethra in atrophy? If the patient's condition should improve, would a suprapubic cystotomy and fistula formation be advisable for drainage and lavage?

N. S. Giardina, M.D., Lorain, Ohio.

Answer.—The symptoms of polyuria, nycturia and strangury in a patient with obstruction of the bladder neck due to atrophy of the prostate would indicate that the urethral irritation caused by the indwelling catheter had extended to the bladder and produced a generalized cystitis in addition to the prostatic edema. The regular catheterization of the bladder and its irrigation once or twice a day with a warm solution of boric acid should prove more efficacious than the placing of a permanent catheter, the use of which had evidently instituted the previous irritation and would therefore probably not be well tolerated. A permanent catheter does not enlarge the urethral lumen but by its presence tends to produce edema, congestion and secondary infection.

Should the symptoms not improve after a course of regular bladder lavage, suprapubic cystostomy should be made. This need not prove a permanent fistula, for after the edema of the prostate has subsided the obstructing portion of the atrophic gland which originally initiated the train of symptoms from which the patient now suffers and is probably not of great size could be removed through the urethra either by the so-called punch operation or by one of the newer technics now commonly referred to as transurethral prostatic resection.

APOMORPHINE IN ECLAMPSIA

To the Editor:—A nonipara, five months pregnant, complained to her family, March 15, that she could not see and that her head ached badly. At midnight she had a convulsion and on examination showed a blood pressure of 225 systolic and 115 diastolic. Urine by catheter boiled solid, and the cervix was tightly closed. The patient was in a violent state at all times, making it necessary to give ether to examine her in any way and requiring two men to hold the arm still while a hypodermic injection was given. All the usual treatment was given her with the exception of evacuating the uterus, as dilating of the cervix was considered too big a procedure at that time. Morphine, barbital, magnesium sulphate by tube in the stomach, bleeding and other measures seemed of no avail and she had fourteen severe convulsions in eight hours. By this time she was in poor condition, the pulse was fast and thready, and it was evident to every one that a fatal termination was in prospect. A short time before, an article appeared in The Journal on strychnine poisoning treated by apomorphine with wonderful results. Owing to the great clinical similarity between strychnine poisoning and eclampsia, it was decided as a last resort to try the same thing in this case. She was therefore given one-fifth grain (13 mg.) of apomorphine by hypodermic injection. There seemed to be no evidence of nausea and within thirty minutes she was perfectly quiet. Two hours later she was given another tenth grain. After this there was some slight evidence of nausea but no vomiting. At this she broke out in a copious perspiration and seemed to be sleeping naturally and within the next two hours wet herself and the bed with urine. No further treatment was given, except hot packs, and the next morning she was conscious and gave her consent to the passage of a catheter to bring on labor. Her blood pressure was 190 systolic and 125 diastolic at this time, the urine boiling solid. She delivered a macerated five months' fetus the third day, and recovery has been uneventful. Did the apomorphine change the picture as it does in strychnine poisoning? Please omit name.

M.D., Utah.

Answer.—The case report on the use of apomorphine against eclamptic convulsions appears quite interesting. The prompt quieting of the patient within thirty minutes after the administration of the first dose of the apomorphine indicates that this was more than a coincidence. It harmonizes with the sedative action of apomorphine in other convulsive conditions, ranging from hysteria and alcoholic delirium to heat cramps and strychnine poisoning. Several cases of the latter were reported in the paper of Haggard and Greenberg (The Journal, April 2, p. 1133), to which the correspondent evidently refers. The mechanism of this antispasmodic action is not understood and its efficacy against strychnine is rather limited; but it may well deserve further trial. The dosage should not exceed that mentioned by the correspondent, one-fifth grain (13 mg.), for the first injection, followed, if necessary, by one-tenth grain (6.5 mg.) in one or two hours.

OPACITY OF CORNEA

To the Editor:—Please give me advice on the following case: A man, aged 38, had an operation on the right eye for certain congenital weakness of the eyesight about fourteen years ago, in which the lens is said to have been removed. Although the sight of that eye was much improved by the operation, he occasionally suffered from "corneitis," and about four years later he resorted by himself to an unwarranted application of an electric (galvanic?) current and suffered from violent headache throughout the night and completely and permanently lost the sight of that eye in the morning. His case was then diagnosed as acute glaucoma. Two years later he contracted an infection and the opacity of the diseased eye became markedly increased. At present there is dense opacity limited within the cornea, through which small portions of clear pupil and iris can be seen. The patient is neurasthenic because of the bad looking eye. The left eye is quite normal and has had no trouble. Will you kindly discuss the general way of treating the cornea opacity for cosmetic purposes? Is there any simple method of camouflaging the leukoma as by painting, other than by removal of the scar tissue or tattooing? Please omit name.

M.D., New York.

Answer.—It is to be regretted, but the patient does not stand much chance of improvement in the appearance of the offending cornea except by some radical procedure. An endeavor to excise the scar surgically would probably make matters worse. Tattooing offers somewhat better chances of cosmetic improvement. If the eye is hopelessly blind, one may advise exenteration with fat implantation into the scleral cavity and subsequent use of a shell eye.

CALCIUM THERAPY

To the Editor:—I am rather at sea regarding certain aspects of calcium therapy. Will you kindly answer the following questions: 1. Does it matter which salt of calcium one uses in attempting to raise the blood-clotting time? 2. Is there any advantage in giving calcium intravenously or intramuscularly, rather than by mouth, except when there is a gastro-intestinal disturbance? Are there conditions in which one can with any certainty say that calcium given as food or by oral medication is not absorbed? 3. Is there any advantage in giving calcium salts for nutritional purposes when the patient is taking an adequate quantity of milk or other calcium-containing foods? 4. Is there any peculiar advantage in the use of calcium gluconate (which one sees advertised much) over the other salts, other than its adaptability for hypodermic administration? In particular, has it any exceptional value in infantile tetany? 5. Has calcium a helpful action in catarrhal infections, or toxic jaundice? Kindly omit name.

M.D., Michigan.

Answer.—1. No.

2. In emergencies, as well as in spasmophilic conditions, intravenous injection may be more rapidly efficient. The details of calcium absorption are not sufficiently understood to pronounce with certainty as to when, under ordinary conditions of life or disease, it will not be absorbed.

3. No.
4. No.
5. No.

HEADACHE AFTER LUMBAR PUNCTURE

To the Editor:—A man, aged 32, had a lumbar puncture early in January for a spinal Wassermann test. This, and the blood test, were found negative. The following day the patient had a severe headache at the back of the neck and the top of the head. As this headache was not relieved in any other way but by lying down, he stayed in bed a month. The headache, which was attributed to a slow leakage of the spinal fluid, improved gradually but still is present each day, sometimes becoming quite severe, the pain being identical with the pain that came on after the puncture. Previous to the lumbar puncture the patient rarely had a headache. He is inclined to be high strung but not neurotic and is in good general health. In the early stage pituitary extract was used, also dextrose solution intravenously. These had only a brief trial. The headache has continued so long that I am at a loss to know whether it can still be due to lack of pressure of the spinal fluid. I should be glad to have a method of treatment suggested. Please omit name.

M.D., Pennsylvania.

Answer.—The protracted headache that is described is probably not due to persistent leakage of the spinal fluid. It is probably a functional headache in a neurotic individual. The reason for the lumbar puncture was not given. It is, of course, possible that the fundamental process for which the spinal puncture was done may be at the basis of the headache.

CUTTING HAIR AND PREMATURE GRAYING

To the Editor:—In the May 14 issue of The Journal a query is made regarding the effect of cutting the hair. It is answered that it "has no effect whatever," and that hair "grows only from the papilla at its base, a separate structure." What, then, accounts for the fact that hair will grow only to a certain length, and that, when cut, it immediately resumes growth until it has again reached that particular length? Doesn't this show the presence of a link between the papilla and the shaft? Does the recent literature give any explanation for premature graying, such as occurs in otherwise perfectly normal and healthy young adults? Please omit name.

M.D., New Jersey.

Answer.—No one will deny "the presence of a link between the papilla and the shaft." The papilla produces the hair, is connected to it during the whole of its time of service, nourishes it and regulates its growth, but at last separates from it, the hair falling out, the papilla remaining in the skin. When cut, the hair regrows, if allowed, to its normal length, because nature insists on hair of a certain length for each individual. The stimulus reaching the papilla must be the change in tension resulting from loss of weight of the hair. Cutting all the hairs does make them grow, but only to their regular length, and does not increase their number. There has been no recent contribution on premature graying.

NO SCARLET FEVER TOXOID

To the Editor.—Will you please inform me where I can get information about a product for the active immunization against scarlet fever which has been developed along the lines of diphtheria toxoid; namely, with solution of formaldehyde as a detoxifying agent. My attention was called to this product in the magazine *Time*, issue of April 11, 1932, under the section of medicine, where the product was described as the discovery of the National Institute of Health. Can you tell me something about this institute and its standing? Please omit name.

M.D., Illinois.

Answer.—The addition of formaldehyde to diphtheria toxin detoxifies the preparation, with the production of a toxoid that retains antigenic or immunizing properties. But it has not been demonstrated that such partial detoxification as results from the addition of formaldehyde to scarlet fever toxin is associated with the production of a scarlet fever toxoid. The best evidence thus far available is to the contrary. Until the existence of a scarlet fever toxoid capable of producing satisfactory immunity is demonstrated, it is inadvisable that preparations claiming to be scarlet fever toxoid be placed on the market, particularly in view of the failure of the "ricinoleated" scarlet fever preparations, for which similar claims were made.

The National Institute of Health is the name now applied to the Hygienic Laboratory of the United States Public Health Service, which has been authorized to conduct research and to receive funds for this purpose.

OINTMENT FOR INFLAMMATION UNDER FORESKIN

To the Editor:—Please advise me whether or not the repeated and prolonged use of an ointment consisting of 1 per cent of yellow mercuric oxide with 2 grains of menthol to the ounce, applied underneath the foreskin in the treatment of smegma and inflammation, is harmful either locally or constitutionally. Would it cause any ill effects either locally or constitutionally in the female, as this medication is transmitted repeatedly during coitus? Please omit name.

M.D., New York.

Answer.—The repeated and prolonged use of yellow mercuric oxide with menthol for the treatment of smegma and inflammation underneath the foreskin is hardly desirable. If the patient has a condition that demands repeated and prolonged local treatment, a circumcision is the simple way out. If the patient does not wish to have a circumcision, dusting powders are indicated. A mixture of equal parts of bismuth subgallate and talcum powder does not produce irritation and is more efficacious.

COLD, CLAMMY, PERSPIRING HANDS

To the Editor:—Under what conditions does one find cold, clammy, perspiring hands? Numerous pupils in my conference groups ask this question. An early reply would be greatly appreciated.

Lucile Spire Blachly, M.D., Weatherford, Okla.

Answer.—The most characteristic type of functional circulatory disturbance resulting in cold perspiring hands is also associated with varying degrees of color change. It is called acrocyanosis. The hands and less often the feet are a red-blue, often somewhat puffy, always cold and moist. The color change is often sharply demarcated above the wrist. There may be no other symptoms, and the individual may seem to be in good health.

This condition appears more often in women than in men, and when in males most frequently at puberty or shortly afterward or associated with effort syndrome It may be one of the features of hypothyroidism, never in hyperthyroidism, in which the hands are moist, red and warm It is a vasomotor neurosis and may occur in association with other neuroses It has been described (Lavani) as occurring in endocrine disorders other than hypothyroidism, especially ovarian dysfunction

Lewis believes that the disorder is one of arteriolar function with angiospasm and capillary anoxemia Lavani and others consider it to be a stasis in the venous side of the capillary circulation with dilatation of the venules

This condition, or *variations of it, may follow on debilitating* illness or even acute infections and occurs commonly in chronic arthritis

Other types of functional circulatory disorders in which pallor is the principal color reaction may fall into the Raynaud disease group, of which there are also variations These may occur in apparently healthy individuals or in association with neurosis

ASTRINGENT RECTAL SUPPOSITORY

To the Editor —Will you kindly supply me with a formula for a good rectal suppository to be used principally as an astringent There is one such on the market a proprietary product and I do not care to use it if I am able to substitute another

W E Scribner M D New York

Answer —The following formula would probably meet the requirements and have the advantage over the proprietary product that it is actually and definitely astringent and that its astringency can be readily modified by changing the proportion of tannic acid

Tannic acid	1 0 Gm
Balsam of peru	1 5 Gm
Bismuth subnitrat	10 0 Gm
Cacao butter	17 0 Gm
Cerate	2 0 Gm

Mix and divide into ten suppositories
Label One three times a day

“BARBOTAGE IN SPINAL ANESTHESIA

To the Editor —Kindly explain just what Labat means by the word ‘barbotage He says, *injection with or without barbotage* Would there be any objection in using an ephedrine procaine ampule for injecting the skin and interspinal ligament before proceeding to the use of French neocaine as is recommended in the spinocaine technic? Which do you think would be the simpler and safer method (spinal) to be used in a small hospital where the responsibility of the anesthetic rests pretty much on the surgeon? I mean which would be the simpler and safer to use, neocaine or spinocaine Please omit name and address

M D North Dakota

Answer —“Barbotage’ is defined in the American Illustrated Medical Dictionary as Fillestre s method of spinal anesthesia in which the needle is inserted into the sacrolumbar space, and after the injection the piston of the syringe is moved to and fro several times’ Commonly, however, barbotage refers merely *to the to and fro motion of the piston during the injection by* which fluid is alternately injected and aspirated Injection without barbotage is made when after injection is once started, the syringe is emptied without further aspiration There is no objection to the use of an ephedrine-procaine hydrochloride solution for infiltration before spinal anesthesia with procaine hydrochloride except in hypertensive patients In these cases the ephedrine should be administered after injection when there is assurance that the procaine has been deposited in the spinal fluid Procaine hydrochloride would be more satisfactory than “Spinocaine’ in the circumstances mentioned

TREATMENT OF SYPHILIS

To the Editor —Sept 15 1931 a man aged 32 first noticed a rash *over the entire* body and complained of sore throat A Wassermann test taken on that date was positive The date of exposure was about Aug 1 1931 No chancre was noticed but there was a swelling of the glans penis, August 11 I assume that he did have an interurethral chancre September 18, treatment was started and he received twelve intravenous injections of neoarsphenamine 0 6 Gm and fifteen 1 cc intramuscular *injections* of potassium bismuth tartrate the course ending on Jan 1 1932 At this time a Wassermann test was taken and proved to be negative January 28 another Wassermann test was taken, which was also negative. The second course extending from January 28 until April 16, included twelve intravenous injections of neoarsphenamine 0 6 Gm., and twelve 1 cc. intramuscular injections of potassium bismuth tartrate I am planning to take another Wassermann test, May 15 Should this next test be negative what would be the treatment, if any, after that? Please omit name

M D, Massachusetts

Answer —The amount of treatment advised by various authorities in the treatment of early syphilis shows great diversity, although all are agreed that adequate treatment administered as early as possible is necessary for a cure If treatment is discontinued at the end of six months in spite of a negative Wassermann reaction there is a possible danger of relapse Two additional somewhat shorter courses of six to eight weeks' duration with one of the arsphenamines and bismuth or mercury compounds should be given A spinal fluid examination should also be done in one of the rest periods

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board for Ophthalmic Examinations Montreal, Sept 19 Sec Dr William H Wilder, 122 S Michigan Ave, Chicago

American Board of Obstetrics and Gynecology The examination will be held in nineteen different cities in the United States and Canada Oct 22 Sec, Dr Paul Titus, 1015 Highland Bldg, Pittsburgh

American Board of Otolaryngology Montreal Sept 17 Sec., Dr W P Wherry, 1500 Medical Arts Bldg Omaha

Arizona Phoenix, Oct 3 Acting Sec, Dr Jos M Greer, Professional Bldg, Phoenix

California *Reciprocity Los Angeles and San Francisco Sept 21* Sec Dr Charles B Pinkham 420 State Office Bldg, Sacramento

Colorado Denver, Oct 4 Sec, Dr William Whitridge Williams, 422 State Office Bldg Denver

Connecticut *Basic Science* New Haven Oct 8 Prerequisite to license examination Address State Board of Healing Arts 1895 Yale Station New Haven

Idaho Boise, Oct 4 Dir, Bureau of License, Mr E L Cruikshank, Boise

Minnesota *Basic Science* Minneapolis Oct 4 5 Sec. Dr J Charnley McKinley, 126 Millard Hall, University of Minnesota Minneapolis

Montana Helena Oct 4 Sec, Dr S A Cooney, Power Block, Helena

National Board of Medical Examiners The examinations in Parts I and II will be held at all centers where there are five or more candidates available in a Class A medical school Sept 14 16 Ex. Sec, Mr Everett S Elwood 225 S 15th St, Philadelphia

New Hampshire Concord Sept 8 9 Sec, Dr Charles Duncan, Concord

New York Albany Buffalo New York and Syracuse, Sept 19 22 Chief Professional Examinations Bureau, Mr Herbert J Hamilton 315 State Education Bldg, Albany

Oklahoma Oklahoma City, Sept 13 14 Sec, Dr J M Byrum, Shawnee

Porto Rico San Juan, Sept 6 Sec, Dr O Costa Mandry, Hospital Mimiya, Santurce San Juan

Wisconsin *Reciprocity* Milwaukee, Sept 13 Sec, Dr Robert E Flynn, 315 State Bank Bldg, LaCrosse

Wyoming Cheyenne, Oct 3 Sec, Dr W H Hassed, Capitol Bldg, Cheyenne

Delaware June Report

Dr Harold L Springer, secretary, Medical Council of Delaware reports the written examination held in Wilmington June 14-16 1932 The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass Eight candidates were examined, 6 of whom passed and 2 failed The following colleges were represented

PASSED

College	Year Grad	Per Cent
Hahnemann Med College and Hosp of Philadelphia	(1931)	87 6 90 1
Jefferson Medical College of Philadelphia	(1929)	83 3
Temple University School of Medicine	(1931)	77 5
Queen s University Faculty of Medicine	(1931)	82 2
University of Western Ontario Medical School	(1931)	81 9

FAILED

	Per Cent
Osteopaths .	71, 74 2

Dr Springer also reports 11 physicians licensed by reciprocity with other states and one physician licensed by endorsement at a meeting held in Dover, June 28, 1932 The following colleges were represented

LICENSED BY RECIPROCITY

College	Year Grad	Reciprocity with
University of Southern California Coll of P & S	(1914)	W Virginia
Baltimore University School of Medicine	(1899)	Maryland
Johns Hopkins University School of Medicine.	(1929)	Maryland
University of Maryland School of Medicine and College of Physicians and S	(1925)	Maryland
College of Physicians	0)	Iowa
University of Nebrasl	8)	Mississippi
Temple University Sc	17)	Penna
University of Pennsyl	6)	Michigan, (1928) Pennsylvania
University of Western Ontario Medical School	(1926)	Michigan
McGill University Faculty of Medicine	(1926)	New York

LICENSED BY ENDORSEMENT

College	Year Grad	Endorsement of
Yale University School of Medicine	(1929)	N B M Ex

Book Notices

The Costs of Medicines: The Manufacture and Distribution of Drugs and Medicines in the United States and the Services of Pharmacy in Medical Care. By C. Rufus Rorem, Ph.D., C.P.A., and Robert P. Fischelis, B.S., Phar.D. Publications of the Committee on the Costs of Medical Care, No. 11. Cloth. Price, $2.50. Pp. 250. Chicago: University of Chicago Press, 1932.

The American people spend approximately $715,000,000 *a* year for drugs and medicines. Of this amount $190,000,000 represents drugs prescribed or dispensed by physicians, $165,000,000 home remedies, and the remaining $360,000,000 represents "patent medicines." It would seem to be reasonable to believe that at least 80 per cent of the last mentioned item constitutes money that is wasted. Perhaps the use of the "patent medicines" results in serious harm because of dependence on them by those who should be receiving scientific diagnosis and treatment. The data here brought out are of great significance in estimating the manner in which money spent for medical care is being distributed. Incidentally, the investigators find that the same public is spending some $300,000,000 annually for toilet goods.

The volume on this subject issued by the Committee on the Costs of Medical Care presents an excellent analysis of the profession of pharmacy and its growth, a consideration of the way in which the pharmacy has been modified by the introduction of other lines of trade, and a consideration of the chain store in the pharmacy field and of manufactures of various types of pharmaceuticals.

A chapter on avertising and promotion of both ethical and quack products affords a remarkable insight into current methods of promotion. In the summary and conclusions to the volume it is brought out that the manufacture and sale of products with secret formulas are inconsistent with lowered costs of medical care, and that the annual bill for medicines in the United States is unnecessarily high. It is also considered an incongruity that the medical profession should follow rigorous codes of ethics in promoting their services, whereas the manufacturers and distributers of medicine utilize all types of merchandising methods for their promotion.

It is considered that federal and state laws controlling manufacture and distribution of medicines are inadequate. The authors recommend better education of the public as to the use of suitable home remedies and the abolition of secret formula drugs and medicine through compulsory disclosure on labels and compulsory operation under annual license of all manufacturers of drugs and medicines.

Elektrische Verletzungen: Klinik und Histopathologie. Von Dr. Stefan Jellinek, a. o. Professor der Elektropathologie an der Universität in Wien. Paper. Price, 42 marks. Pp. 340, with 215 illustrations. Leipzig: Johann Ambrosius Barth, 1932.

The increasing practical use of electricity has led to the development of a new branch of medicine; namely, electropathology. Jellinek's book is *noteworthy* as a *pioneer*, systematic presentation of the clinical phenomena and the pathologic anatomy of electrical injuries. The book is the product of thirty years of active clinical experience and study of electropathology in cooperation with clinicians and investigators in the Allgemeines Krankenhaus in Vienna. A brief summary of the contents will indicate the scope of the book. The first chapter deals with electrical trauma and the various factors concerned in its production under various conditions. Then the subjective sensations and the immediate objective symptoms of the victims of electrical injury are discussed. Next comes detailed description of electrical changes in the covering of the body: the mark of the current (*strommarke*), electromechanical injury, the electrical burn, mixed forms, metallization, electrochemical changes, edema, impressions, lightning figures, and the immediate electrical necrosis. This part is illustrated by fifty telling illustrations, many in colors. Now follows consideration of severe external electrical injuries, the general aspects, including bacteriology, cranial injuries and injuries of the extremities and the trunk. This part also is well illustrated. The morbid conditions produced in the internal organs and the nervous system by electricity are considered in two chapters. The gross and microscopic anatomy of electrical trauma is described in two well illustrated chapters. The final chapter is devoted to treatment. The imperative necessity of prolonged artificial respiration (Silvester's method preferred) in cases of apparent death from electrical shock is emphasized. If the efforts are not successful after twenty minutes, withdrawal of enough spinal fluid by lumbar puncture to reduce the pressure to normal is urged. The value is stressed of the benzine compress, carefully applied, as a heart stimulant and in external electrical injury. But this is not *the place to discuss* details of treatment. The book is a contribution of major significance to electropathology and it should be translated into English.

Essentials of Psychiatry. By George W. Henry, A.B., M.D., Assistant Professor of Psychiatry, Cornell Medical School, New York. With a chapter on Psychiatric Nursing. By Adele Poston, R.N. Second edition. Cloth. Price, $4. Pp. 304. Baltimore: Williams & Wilkins Company, 1931.

In the comparatively small bulk of this volume the author has endeavored to present not only descriptions and case reports of the psychoses and psychoneuroses and their treatment but also personality development, child guidance, mental hygiene, psychopathology of the normal, the various forms of psychoanalysis and, in addition, psychiatric nursing and social service. The natural consequence is that the presentation is summary and dogmatic and tends to make the problems appear far more simple than they really are. The material is carefully selected and formally sound and has been put together in probably as good a form as is possible in view of the enormous ground covered. The danger is that it will leave the impression with the reader that he knows all there is to know about psychiatry. The author evidently recognizes the danger of oversimplicity and in the introduction cautions the reader to make use of the references given to the literature, though it appears from looking through them that they refer in the majority to strictly psychoanalytic literature.

Undersökningar över främre hornhinneytans form. Akademisk Avhandling *som med tillstånd av vitterfarna medicinska fakulteten i Uppsala för* vinnande av medicinsk doktorsgrad till offentlig granskning framställes. Av. Fredrik Berg, Med. Lic. å Fysiologiska Institutionens Lärosal Lördagen den 16 Mars 1929 Kl. 10 F. M. [Investigations Concerning the Outer Surface Form of the Cornea. An Academic Dissertation Which, With the Permission of the Advanced Medical Faculty at Uppsala University, is Presented by Fredrik Berg, Medical Licentiate, at a Public Examination for the Object of Winning his M.D. at the Examination Hall of the Institute of Physiology—Saturday March 16, 1929 at 10 A. M.] Paper. Pp. 189, with 92 illustrations. Göteborg: Elander, 1929.

The purpose of this research is to establish as accurately as possible the curvature of the anterior surface of the cornea and its variations in different states of refraction and in varying sizes and shapes of the eye itself. The work is based on the examination of 130 normal eyes, two cases (four eyes) of microphthalmia, one case (two eyes) of microcornea, and five cases of megalocornea. In conducting the investigation, the *principle of measuring* the corneal reflexes from mires of known dimensions was followed and two methods were used: one by means of a modified Javal-Schiøtz ophthalmometer and the other by the photographic method of Gullstrand. Both methods are open to minor errors, but the nature of the errors in one case is entirely different from that in the other.

The previous conceptions of the shape of the cornea, as formulated by Gullstrand and others, are that the central area of the cornea, approximately 4 to 5 mm. in diameter, is essentially spherical; that the central spherical area is displaced somewhat temporally and downward from the visual axis; that from this area toward the periphery the curve flattens, and that the flattening of the curve is more marked nasally and above than temporally and below. The author finds these conceptions essentially correct.

The curve of the horizontal meridian, in eyes in which the central refraction and in which the dimensions of the eyes fall within normal limits, proves to be remarkably symmetrical and constant. The horizontal curve, therefore, is used mainly in this work in recording comparisons in different conditions. The vertical meridian, on the other hand, shows wide variations and irregular curves.

The author goes at some length into the phenomenon of a line which Handmann had observed during transillumination of the eyeball and first described in 1923. Handmann designates it as a fine, refractive line running in an oblique horizontal direction through the upper half of the cornea Berg investigated 100 consecutive cases of otherwise normal eyes and demonstrated Handmann's line, not only by transillumination but also by skiascopy, in twenty-one cases Corresponding to this line, he discovered a sudden flattening of the corneal curve at about 15 to 20 degrees above the horizontal meridian This flattening followed roughly the location of the edge of the upper lid In all these cases there existed an increased pressure on the eyeball either from such conditions as blepharospasm, or from a thick and heavy upper lid He concludes, therefore, that Handmann's line is the result of an abnormal pressure of the upper lid on the cornea

In cases in which the normal proportions of the bulbus are disturbed, as in microphthalmia, microcornea, megalophthalmia and megalocornea, the corneal curves do not follow those of the normal eye The difference manifests itself mainly in a contraction or an expansion of the central spherical area The peripheral flattened zone is much less affected as to both shape and extent In microphthalmia and in microcornea the central spherical area is partly or entirely absent The peripheral flattening on one side meets that on the other side in the center of the cornea This offers an explanation for the high degree of hyperopia that often accompanies a pure microphthalmia In megalocornea the increase in area is taken up nearly altogether by an enlargement of the central spherical area

The work bears evidence of extensive and careful study of the field, including the numerous mathematical considerations that enter into the subject The only criticism that could be brought against it would be that the conclusions are based on the study of a rather small number of cases

The Cost of Equipping a Dental Office A Study of the Initial Expenditures of Dental Graduates When Equipping an Office for Practice By Dorothy Fahs Beck of the Research Staff of the Committee on the Study of Dental Practice of the American Dental Association Publications of the Committee on the Study of Dental Practice of the American Dental Association No 2 Paper Pp 11 Chicago University of Chicago Press 1932

The data on which this study is based consist of information from two independent sources namely replies of dental graduates of 1930 to a schedule sent them by mail, and information furnished by dental supply houses regarding the purchases in 1929 of recent dental graduates Schedules sufficiently completed for use in the study were received from 512 graduates of 1930 The information received from nine dental supply houses furnished data on 236 purchases

The mean initial expenditure for operating room and laboratory equipment of 480 dental graduates of 1930 was $2 340 The mean intial expenditure for the same item of forty-one dentists who specified second-hand equipment was $1,515, or somewhat more than $800 below that for the total group A comparison of these figures with the data from the dental supply houses shows that the mean initial expenditures of 236 purchases reported by individual dental supply houses for 1929 was $2 109, or about $230 less than the amount reported directly from 480 dentists Table 3 is interesting because of the percentage of analysis of the various articles of equipment purchased by 500 dental graduates of 1930 (these articles were purchased prior to 1931) Of the 500 dentists, 100 per cent purchased a dental chair 99 per cent a cabinet 97 per cent, a sterilizer 95 per cent a dental unit 90 per cent a dental light 88 per cent, an electric engine 69 per cent, casting equipment, 65 per cent, an electric lathe 52 per cent a laboratory bench, 49 per cent, an air compressor, 46 per cent, x-ray equipment, 8 per cent, a gas machine, 4 per cent, a safe This analysis does not necessarily include all articles of purchase but is merely an analysis of those items asked for on the schedule used in the study

It appears from this study that the mean initial expenditures for dental supplies of 486 dental graduates of 1930 was $187, and the mean initial expenditures for reception room furnishings of 496 dentists of the same year of graduates, $139 In some instances it was found necessary for dentists to expend a certain amount for additional plumbing and wiring of their offices The mean initial expenditure for this item is given at $162

The average of these total expenditures is $2 867 This includes an average for miscellaneous items of $66 In percentages, this may be summarized as follows dental equipment, 80 7 per cent, supplies, 6 5 per cent, plumbing and wiring, 5 7 per cent, reception room furnishings, 4 8 per cent, miscellaneous, 2 3 per cent

It appears that those dentists who were beginning to practice in towns of medium size spent on the average more for their office equipment than those locating in small towns or large cities

Although this analysis does not purport to include all factors that are involved in the equipment for dental practice, the data presented should provide a helpful guide to those who are about to enter the practice of dentistry.

La syringobulbie Contribution a la physiopathologie du tronc cerébral Par N Ionesco Sisesti Preface du Professeur Georges Guillain Paper Price 70 francs Pp 391, with 28 illustrations Paris Masson & Cie 1932

Cavities occurring in the spinal cord and known as syringomyelia may arise also in the medulla, when they are termed syringobulbia They may form in the medulla secondarily, by extending from the spinal cord, or may originate there primarily As they are located in a comparatively small area, where the majority of the cranial nerves essential to life originate, the clinical pictures of syringobulbia of necessity vary greatly On the other hand, the cavities may cause only a small destruction of the medulla, of one nucleus or of one of the numerous pathways connecting the medulla with the neighboring organs Such lesions cannot be produced experimentally, and to have an opportunity to study the changes produced by such natural experiments is a great privilege Jonesco-Sisesti followed up eleven personal cases of syringobulbia, four of them pathologically in serial sections all with the method of Weigert-Pal counterstained with carmine, in one case an Alzheimer method was used also In addition, he gathered a hundred cases from the literature Probably a more thorough study with histopathologic methods of the four cases of cavities in the medulla would have led the author to the conclusion that syringomyelia or syringobulbia is not identical with a gliomatous growth and that neither is an infectious disease Probably it would have shown also why there is sometimes lack of correspondence between the extent of the anatomic changes and the clinical picture, which may be insignificant in the presence of vast anatomic changes Otherwise, the difficult and seemingly dry subject is covered admirably, in an entertaining and lucid manner The clinical and anatomophysiologic facts are carefully studied, analyzed and correlated It is an exceptionally able review of the modern status of the anatomy and physiology of the cranial nerves, their nuclei and tracts It is the best and most comprehensive treatise on the subject since the famous monograph of Schlesinger of thirty years ago In an extensive treatise like this with a bibliography of 460 references, mistakes are unavoidable Onuf and Collins for instance well known American neurologists, are referred to as British Dejerine is spelled Dejerine, and Argyll Robertson is spelled Argyll-Robertson

The Anthropometry of the American Negro By Melville J Herskovits Cloth Price $4 Pp 283 with 31 illustrations New York Columbia University Press 1930

The American Negro today is not the American Negro of Revolutionary or Civil War days In this volume the author, as the result of four years of research presents a picture of what has developed from the American Negro through long continued mixture with the white population and the aboriginal American Indian types Twenty-nine per cent of the Negroes examined claimed to have partial Indian ancestry and the anthropometric studies seemed to confirm the validity of this claim The type toward which the American Negro in this country seems to be evolving is a relatively homogeneous one The current customs among the American Negro populations bearing on the invidious nature of light color seem to make for a strong tendency toward marriage between dark men and light women and thus to set up a social mechanism which, if continued will intensify Negroid features for this type in the future The studies of Herskovits incline him to the belief that the amount of racial mixture represented in the American Negro population as a whole shows that the census estimate of 85 per cent pure Negro is not correct

Die Nervenkrankheiten des Kindesalters. Von Professor Dr. Georg Peritz Second edition. Paper. Price, 39.50 marks. Pp. 688, with 178 illustrations Leipzig: Fischers medizinische Buchhandlung, 1932.

This book, the first edition of which appeared twenty years ago, has been completely rewritten. In the lapse of years, knowledge of the nervous diseases of children has increased and several diseases have been described and studied which were unknown when the previous edition was published. The author attempts to justify the teachings of Freud, but he does not think that the freudian treatment is applicable to nervous children. The subject matter is divided into two parts, the general and the special. In the first division he considers in detail the nervous structures of childhood, general symptomatology, the autonomic nervous system, speech disturbances, examination of the spinal fluid, roentgen examination of the skull, ventriculography, and the microscopic study of the skin capillaries. A tabular form is given for psychologic examination, with minute details for determination of the mental status. In the special portion of the book he discusses the usual organic nervous diseases, as well as the diseases of the endocrine system. Chapters on the neuroses and the psychopathic diseases of childhood are included. The author notes that, in infantile cerebral palsy, birth trauma should be considered only one of the factors in the etiology and that the hemiplegic forms are more often the result of infection, while birth trauma contributes a considerable part in the production of the diplegic forms. Nevertheless, syphilis, postpartum trauma and brain malformation associated with malformation in other organs are contributing factors, in some cases at least. The chapter on encephalitis is well presented, and the postvaccinal variety is considered in some detail. Peritz believes that this condition is caused by an extraneous virus in the vaccine. Syphilitic disorders of the nervous system receive important and detailed consideration, together with minute directions for treatment. In discussing epilepsy the author considers the various theories concerning the etiology and pathology and comes to the conclusion that the disorder is not due to physiochemical, anatomic or physiologic causes but to a vascular circulatory disturbance. In other words, he believes that an angiospastic spasmophilic constitution is the basis for epilepsy. This is a splendid compendium of our knowledge on the nervous and mental disorders of infants and children, and it will be eagerly consulted by those who seek authoritative information.

The Healing Cults. A Study of Sectarian Medical Practice: Its Extent, Causes and Control. By Louis S. Reed, Ph D Publications of the Committee on the Costs of Medical Care, No. 16. Cloth. Price, $2. Pp. 134 Chicago: University of Chicago Press, 1932.

Many of the studies made by the Committee on the Costs of Medical Care may have seemed to physicians to be somewhat remote from any immediately practical service to the public. Such questions cannot, however, arise in relationship to the present volume. Here, unquestionably, is the most accurately assembled data thus far made available on sectarian practice. Dr. Reed points out that there are some 36,000 cult healers in the United States, including osteopaths, chiropractors, naturopaths, manipulative and physical therapeutic healers of all types, and the numerous offshoots of Christian science and faith healing. For the worse than useless services of this remarkable group, the American people pay each year $125,000,000. When it is considered that this sum represents more money than is spent altogether for preventive medicine, a realization of what such waste means to the public begins to develop. The book is crammed with facts. Reed considers the distribution and economic importance, the history, the legal regulation and the medical relations of each one of the cults discussed. He lists the available schools and provides data as to numbers of men in practice and the amounts that they earn. The concluding chapter deals with the causes and control of medical sectarianism. It is found that the cultists flock to large population centers more than do physicians, that practically all of them except Christian science are peculiar to America, that none of the cults have any permanence, and that they have no proper or logical place in medical care. The psychology of cultist practice seems to be quite thoroughly understood by Dr. Reed. The basis of their existence is the failure of the public to understand scientific medicine; the relationships of physicians; their significance in the social, economic and scientific plan of things, and the long and arduous preparation actually necessary for medical practice. Dr. Reed considers what the law may do to control sectarian practice and comes eventually to emphasis on basic science laws and a minimum standard of education for all who propose to heal the sick.

Handbook of Medicine for Final Year Students. By G F Walker, M D, M R C P, Consulting Physician to the Sunderland Municipal Hospital, Leeds Cloth. Price, 10s 6d Pp 255 London John Bale, Sons & Danielsson, Ltd., 1931.

A careful perusal of this little volume, subsequent to an unfavorable prejudice gained by reading the introductory note, completely substantiates the author's claims. Following is an abstract of the introductory note:

> The author of this book ventures to claim for it a high degree of utility and originality. It is intended to serve several classes of students of medicine. First, the serious student in his clinical years taking the ordinary course for degree or license who wishes to know the topics and problems on which he should concentrate Second the student who has perhaps been disheartened by the difficulties and complexities of medical study and who wishes in a few months or weeks prior to his "final" to turn to something fresh and practical which has been almost specifically written for him Third the newly qualified practitioner about to embark on hospital or assistantship duties and who wants some pithy and everyday medicine in small compass Fourth, the practitioner who has been devoted to some narrow specialty and who requires to keep alert and polished in general medicine Finally, the man who has been parted from formal academic medicine for a little time and who wishes to revise his knowledge therein prior to taking a higher diploma or degree
>
> The book has been written with all these requirements in view Concentration on essentials has been throughout the aim The book should be used to supplement study in the wards and outpatient departments and it should be used to round off and consolidate the work of lecture room, study and bedside. No attempt has been made to go beyond the scope of a practitioner armed with seeing eyes, sharp ears deft fingers open mind and clinical perspective

The book is therefore recommended for purchase by the medical student and practitioner.

Microscopic Slide Precipitation Tests for the Diagnosis and Exclusion of Syphilis. By B S Kline, A.B, M D, Chief of Laboratories, Mount Sinai Hospital of Cleveland Cloth Price $2.50 Pp 99 with 28 illustrations. Baltimore: Williams & Wilkins Company, 1932

In 1926, Kline and Young published a precipitation test for syphilis in which Kahn antigen suspension was mixed with serum on a slide and the results were read by means of the microscope. Since that time, Kline has developed several antigens especially suitable for slide work and has evolved "diagnostic" and "exclusion" tests with heated serum, unheated serum, defibrinated blood and spinal fluid. The diagnostic tests Kline interprets as conservative in sensitiveness but highly specific; the exclusion tests as highly sensitive but not quite specific. In the present manual, the author summarizes and amplifies his published studies. The manual is especially well printed and should be of interest to serologists.

Klinische Elektrokardiographie mit einem Grundriss der Arhythmien. Von Dr. Wilhelm Dressler, Assistent der „Herzstation" in Wien Mit einem Geleitwort von Prof Dr. C. J. Rothberger Second edition Paper Price, 12 marks Pp. 148, with 118 illustrations Vienna Urban & Schwarzenberg, 1932

The aim of the author has been to present the subject of electrocardiography in brief form and from the clinical point of view, so that it might meet the needs of the practitioner This purpose he has successfully accomplished, largely by the omission, or only casual consideration, of theoretical and debatable questions. There is a brief discussion of the principles underlying electrocardiography, the methods employed in taking tracings, the normal electrocardiogram, and alterations due to change of position or increase in size of the heart. Then follow chapters dealing with variations due to unusual origin or conduction of impulses. There is a final chapter on the electrocardiogram in diseases of the heart and vessels. In an appendix there is presented a table that may serve as a guide to one attempting to analyze and interpret cardiac tracings. The book is well written and well printed. The fact that this edition follows the first in about a year speaks for the warm reception of the volume by German-speaking physicians. While it will not displace the excellent works of similar scope that have been written by English, French and American authors, it is a fit companion of these and deserves favorable comment.

Medicolegal

Liability of Interns and Nurses for Negligence

(Nickley v Skemp (Wis), 239 N W 426)

Marvin Nickley bled to death in a hospital, following a tonsillectomy His administrators sued the physician who performed the operation, three interns, who were graduates of medical colleges but not licensed to practice medicine, and two undergraduate nurses, the interns and nurses having been assigned by the hospital to the care of the patient The complaint alleged that the defendant physician who operated performed the operation carelessly and negligently and that all of the defendants "were careless and negligent in the following respects *in caring for said patient In failing and omitting to examine* said child at any time prior to said operation, in omitting to give said child a blood coagulation test at any time prior to said operation and treatment, in failing to properly examine said child throughout the period he was in said hospital, in refusing to call a duly licensed physician to care for said child after said operation, in failing to apply usual and customary methods of stopping bleeding, in failing to properly diagnose and determine the physical condition of said child following said operation, in failing to inform each other of the condition of said patient as observed, in refusing to comply with the demands of the parents of said child that the condition of said child be reported to (Dr ———, the physician who operated) and that said doctor be called, in neglecting to give said child blood transfusions or take other means to revive him, and in permitting said child to bleed to death without proper care, treatment and attention"

All of the defendants except the operating physician demurred to the *complaint on the ground that it failed to state facts* sufficient to constitute a cause of action against them They claimed that the duties that they were charged with having failed to perform were duties which under the law could be performed only by practicing physicians, that the complaint did not charge them with having failed to perform duties which they could lawfully perform, and that their failure to perform duties that they had no legal right to perform could not constitute negligence on their part

The very fact, said the Supreme Court of Wisconsin, on appeal, that the interns and nurses who demurred were in the employ of the hospital in the respective capacities named and were assigned by the hospital to the care of the patient is a sufficient allegation that they owed to the patient the performance of such duties as were ordinarily performed by those occupying similar positions in the hospital The contention of these defendants that the complaint was deficient because it failed to allege specifically each and every duty devolving on them in the course of their care of the patient the court refused to sustain The complaint, said the court, specifically alleges that all of the defendants were negligent in certain stated particulars, and this plainly is tantamount to alleging that the faithful performance of their duties required them to do those things which it is alleged they negligently omitted and failed to do Whether such duties actually did devolve on them or not will be a matter of proof, as will also the determination whether such duties devolved on the interns or on the nurses

It cannot be said that the performance of the duties with which it was alleged the defendants were charged were duties that it would have been unlawful for them to perform The law recognizes that a hospital internship of at least twelve months is required before a license to practice medicine may be granted Although under the law no person may practice medicine, or hold himself out as authorized to practice medicine, without first securing the required license or certificate, yet the law itself requires an internship as a part of one s medical education before one can be licensed to practice This is a legal sanction of the performance of such duties on the part of interns as are usually and ordinarily performed by them The performance of such duties does not constitute the practice of medicine or a representation that the intern is authorized to practice medicine

And so with nurses Most of them acquire their education through hospital service In fact, many hospitals are licensed as nurses' schools by the state board of health The law does not prohibit any one from practicing as a nurse It prohibits any person from practicing or attempting to practice as a registered, trained, certified or graduate nurse, without a certificate of registration Any one who assumes to act as a nurse assumes certain duties, and the failure to perform those duties may constitute negligence

The Supreme Court held, therefore, that the complaint stated a cause of action against all of the defendants, adding that whether they were jointly liable for their several acts of negligence, a question not presented by the demurrer, would more definitely appear from the evidence when the case was tried

Evidence: Testimony by Physicians Concerning Complaints of Patients.—In no decision or text that we have been able to find, says the Supreme Court of Washington, has it been held that a physician called for the purpose of effecting the cure of a patient is not permitted to testify as to his patient's statements concerning past pain and suffering A physician called for the sole purpose of qualifying himself to testify in a trial, and not for the purpose of treatment, may testify, in the state of Washington, as to those statements that were made to him by the person examined, regarding her condition, on which the physician bases his opinion Such testimony is admissible, however, not to prove the condition of the patient at the time of the examination, but only to enable the jury to determine the weight to be given the opinion of the physician The fact that a more restrictive rule as to the admission of such evidence in cases of this character is followed by the United States Supreme Court and by most federal courts was not regarded by the Supreme Court of Washington as a sufficient reason for changing the practice established in the state of Washington According to the appellant in this case, in twenty-seven jurisdictions, including the United States Supreme Court and several other federal courts, the rule runs contrary to Washington practice — *Kraettli v North Coast Transp Co (Wash), 6 P (2d) 609.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Montreal, Sept 19 23 Dr William P Wherry, 1500 Medical Arts Building Omaha, Neb , Executive Secretary

American Association of Obstetricians Gynecologists and Abdominal Surgeons French Lick Indiana, Sept 12 14 Dr Magnus A Tate, 19 West Seventh Street, Cincinnati, Secretary

American Congress of Physical Therapy, New York, Sept (10 Dr F B Balmer, 185 North Wabash Avenue, Chicago, Secretary

American Hospital Association Detroit, Sept 12 16 Dr Bert W Caldwell, 18 East Division Street, Chicago Executive Secretary

American Physical Therapy Association, Detroit September 28 30 Dr C C Vinton, 585 West End Avenue, New York, Secretary

American Roentgen Ray Society, Detroit, September 27 30 Dr Eugene P Pendergrass, 3400 Spruce Street, Philadelphia, Secretary

Colorado State Medical Society, Estes Park, Sept 8 10 Mr Harvey T Sethman, 227 16th Street, Denver, Executive Secretary

Delaware, Medical Society of, Lewes, September 27 28 Dr W O La Motte 604 Medical Arts Building, Wilmington, Secretary

Idaho State Medical Association, Pocatello, Sept 16 17 Dr Harold W Stone, 105 North Eighth Street Boise, Secretary

Indiana State Medical Association Michigan City September 27 29 Mr T A Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary

Kentucky State Medical Association Louisville October 3 6 Dr A T McCormack, 532 West Main Street Louisville, Secretary

Michigan State Medical Society, Kalamazoo, Sept 13 15 Dr F C Warnshuis, 148 Monroe Avenue Grand Rapids Secretary

Nevada State Medical Association, Reno, Sept 23 24 Dr Horace J Brown, 120 North Virginia Street, Reno Secretary

Oregon State Medical Society, Klamath Falls Sept 22 24 Dr Albert W Holman, 410 Taylor Street, Portland, Secretary

Pennsylvania, Medical Society of the State of, Pittsburgh October 3 6 Dr Walter F *Donaldson*, 500 *Penn* Avenue, Pittsburgh Secretary

Utah State Medical Association Ogden Sept 15 17 Dr Leland R Cowan, 305 Medical Arts Building, Salt Lake City, Secretary

Vermont State Medical Society, Burlington, October 6 7 Dr William G Ricker, 31 Main Street, St Johnsbury, Secretary

Washington State Medical Association, Tacoma Sept 12 14 Dr Curtis H Thomson, 1305 Fourth Avenue, Seattle, Secretary

Wisconsin, State Medical Society of, Milwaukee, Sept 14 16 Mr J G Crownhart, 119 East Washington Avenue, Madison, Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

1: 417-444 (May) 1932

*Bacteriophage: Its Nature and Its Therapeutic Application. J. E. Walker, Opelika.—p. 417.
Vertigo. J. G. Sanders, Mobile.—p. 420.
*An Improved Technic for Perineal Repair in Presence of Rectal Pathology. C. D. Gaston, Birmingham.—p. 423.
The Doctor, His Office and the Patient. J. R. Garber, Birmingham.—p. 424.
Removal of Gallbladder. A. M. Roan, Decatur.—p. 428.
Solution of Medicolegal Problems by Blood Grouping Tests. L. W. Parr, Andalusia.—p. 429.

1: 445-496 (June) 1932

The President's Message. T. Gaines, Mobile.—p. 445.
Practical Points on Diagnosis and Treatment of So-Called Lymphoblastoma Group of Diseases. A. B. Cannon, New York.—p. 454.
Rôle of Calcium and Phosphorus in Prevention and Cure of Rickets. C. J. Bloom, New Orleans.—p. 467.
Clinical Aspects of Hay Fever and Asthma. G. H. Fonde, Mobile.—p. 471.
The Game Bird as Possible Disseminator of Tularemia. E. Tankersley and I. L. Johnston, Samson.—p. 478.

Bacteriophage.—Walker calls attention to the fact that the nature of bacteriophage is not definitely known, although its properties suggest that that it may be a filtrable virus parasitic on bacteria. Its use does not appear to influence the course of septicemia and genito-urinary infections. Its value in dysentery, cholera and plague has not been definitely ascertained. Bacteriophage is of definite benefit in the treatment of staphylococcus infections so situated that local dressings moistened with bacteriophage can be applied. Among conditions so amenable to treatment are abscesses, furuncles, osteomyelitis, impetigo, and furunculosis of the external auditory canal. In treating such infections, good results are obtained with the use of stock staphylococcus bacteriophage.

An Improved Technic for Perineorraphy.—Gaston performs perineal repair with the patient in the ventral-prone posture. In this position, the field is drained of blood and the thighs are apposed, the latter fact permitting easy apposition of the levator muscles. Regional anesthesia, either extradural or intradural sacral, gives complete relaxation and facilitates differentiation of tissue planes. Very little bleeding obscures the operative field. With the patient in this posture and the pelvis elevated 15 cm. on a pillow, by lowering the plane of the body 15 degrees or more and slightly elevating the thighs above the horizontal, one places the field of operation in a maximal surgical position in the same fashion that a laparotomy wound is exposed. Also, assistants are in a helpful relationship. The method of suture of levator muscles is the other essential improvement in technic. It is an established fact that sutured muscle in these operations tends to break down about the tenth day. The author believes this is due to strangulation by right-angled sutures. He has adopted the plan of placing number 2 doubled chromic catgut sutures through the muscles in line with the muscle fibers. In this way, strangulation will not occur and the needle is never directed toward the rectum. These sutures are interrupted and the number is governed by the degree of tissue separation. With thighs lying close together, the levators fall into apposition without tension. An uncomplicated technic is employed throughout. The mucosa and skin are closed with a running stitch of plain catgut. Redundant vaginal mucosa is not removed but tucked back above the newly made perineal floor. In the case of coexisting hemorrhoids, these are removed by a ligature procedure.

American Journal of Anatomy, Philadelphia

50: 179-349 (May 15) 1932. Partial Index

Developmental Significance of Mammalian Pharyngeal Tonsil: Cat. B. F. Kingsbury, Ithaca, N. Y.—p. 201.

American Journal Medical Sciences, Philadelphia

183: 741-888 (June) 1932

*Cardiac Manifestations of Hyperthyroidism. E. C. Andrus and D. McEachern, Baltimore.—p. 741.
*Management of the Decompensated Cardiac Invalid: I. One Hundred Case Records Analyzed from Standpoint of the Individual Patient. H. T. Hyman and N. M. Fenichel, New York.—p. 748.
Id.: II. Effects of Specific Medication. H. T. Hyman and N. M. Fenichel, New York.—p. 753.
*Experimental Chronic Hyperparathyroidism: II. Osteitis Fibrosa Produced in Rats. J. L. Johnson, Chicago.—p. 761.
Id.: III. Osteitis Fibrosa Produced in Puppies. J. L. Johnson, Chicago.—p. 769.
Id.: IV. Effects of Administration of Irradiated Ergosterol. J. L. Johnson, Chicago.—p. 776.
*Idiosyncrasy to Viosterol. M. B. Gordon and H. Lieberman, Brooklyn.—p. 784.
Serum Treatment of Nineteen Cases of Anthrax Including One of External, Internal and Bacteremic Type. P. F. Lucchesi, Philadelphia.—p. 795.
Pregnancy and Diabetes, with Report of Five Cases and Review of Literature. B. D. Bowen and N. Heilbrun, Buffalo.—p. 803.
Renal Glycosuria. A. Marble, Boston.—p. 811.
Chronic Essential Pentosuria: Report of Three Cases. A. Marble, Boston.—p. 827.
Therapeutic Effect of Hemolysis, Especially in the Anemias. C. F. Charlton, Pasadena, Calif.—p. 832.
Diaphragmatic Tic Relieved by Section of Phrenic Nerves: Report of Two Cases. H. Smith, Greenville, S. C.—p. 837.
Relation of Sympathetic Nervous System and Generalized Lymphoid Hyperplasia to Pathogenesis of Exophthalmic Goiter and Chronic Lymphatic Leukemia. H. B. Friedgood, Ann Arbor, Mich.—p. 841.
Inefficacy of Spleen Extract in Treatment of Lymphatic Leukemia. J. E. Gonce, W. S. Middleton, H. C. Bradley and M. S. Nichols, Madison, Wis.—p. 850.

Cardiac Manifestation of Hyperthyroidism.—Andrus and McEachern describe experiments which appear to show that the tachycardia of hyperthyroidism and possibly other and more serious phenomena are related to the direct metabolic action of thyroxine or its products on the myocardium. In short, it appears that the cardiac tissue shares in the metabolic upheaval characteristic of this disease. In addition there falls on the myocardium the burden of the increased circulatory demands of the entire organism, the metabolism of which is elevated. These two factors combine to bring to the fore the cardiac manifestations of hyperthyroidism; in individuals whose circulatory reserve has been diminished by age or by organic cardiac disease they may result in myocardial failure. That prolonged hyperthyroidism results in some degree of cardiac hypertrophy seems to be well established. However, hypertrophy does not indicate myocardial damage; much less is it due to the action of a specific myocardial poison. In this instance it is to be attributed to the burden of an increased circulatory minute volume. There is, indeed, little evidence that the heart is permanently damaged. How much functional impairment may be produced by a protracted siege of this disease is a question yet unsettled. The authors conclude that it is, perhaps, the most accurate attitude to look on the heart in hyperthyroidism as suffering from its own accelerated metabolism and from the load thrown on it by the metabolism of the body as a whole. From both of these burdens it can, happily, be relieved by correction of the hyperthyroidism.

Management of the Decompensated Cardiac Invalid.—Hyman and Fenichel summarize the records of 100 decompensated cardiac invalids and note the therapeutic regimen. Eight patients were restored to compensation by physiologic rest and dietotherapy. Mechanical removal of fluid from the serous cavities was practiced in fourteen of the group. Fifty-six patients were specifically benefited by digitalis and all but four in this group had auricular fibrillation. Sixty-four patients, edematous despite physiologic rest, dietotherapy and digitalization, were relieved by the administration of mersalyl with or without the simultaneous administration of urea and the acid salts. Five patients responded by diuresis to urea alone. The authors enumerate thus the four cardinal steps in the management of the decompensated cardiac invalid: (1) physiologic rest and dietotherapy, (2) mechanical evacuation of fluid from the serous cavities, (3) digitalization, and (4) the use of diuretics.

Experimental Chronic Hyperparathyroidism.—White rats, aged from 6 to 12 weeks, were injected daily by Johnson for periods of from ten to forty-three days with parathyroid extract in doses of from 10 to 20 units A Steenbock normal rat diet was given Uninjected litter mates as controls remained well, whereas the injected animals developed, without exception, muscular weakness, hypotonia and skeletal lesions characteristic of osteitis fibrosa osteoplastica (von Recklinghausen), namely, a lacunar resorption of bone with softening and deformity, bending and multiple fracture The cortex and marrow of these bones were largely replaced by fibrous connective tissue containing numerous giant cells and new bone osteoid tissue was also in evidence in numerous cases These experiments support the conclusion that the cause of clinical osteitis fibrosa osteoplastica (von Recklinghausen) is an excess of the parathyroid hormone

Idiosyncrasy to Viosterol—Gordon and Lieberman administered irradiated ergosterol in the form of viosterol (100 D and 250 D) in doses of 1 to 9 drops a day to 200 infants, who were observed over a period of from six months to one year Untoward symptoms were noted in fifteen in the following order of frequency diarrhea, vomiting loss of appetite colic and stationary or loss of weight No case was included in this group unless a definite sequence was obtained consisting of administration of the drug, appearance of ill effects subsidence of the latter on suspension of the drug and finally reappearance on the resumption of viosterol From their study the authors conclude that a definite pharmacologic idiosyncrasy to minute amounts of irradiated ergosterol (viosterol 250 D) exists in some infants According to the incidence found in their series, this is of more frequent occurrence than the literature indicates The drug should be suspended on the appearance of any ill effects and permanently discontinued in the event of reappearance of symptoms on its resumption The idiosyncrasy to viosterol may not be permanent The possibility of an idiosyncrasy should in no way detract from the general use of viosterol in either the prophylactic or the therapeutic treatment of rickets

American Journal of Ophthalmology, St. Louis

15. 493 588 (June) 1932

Amblyopia ex Anopsia in Adult Life I C Peter Philadelphia—p 493
Surgery of Inner Canthus and Related Structures V P Blair, J B Brown and W G Hamm St Louis—p 498
Controlled Reading D W Wells, Boston—p 508
Rational Employment of Eye Drops and Eye Ointments E Olah Gyula Hungary—p 510
Refractive Asymmetry in Temporal and Nasal Halves of Visual Field C E Ferree G Rand and C Hardy Baltimore—p 513
Single Scleromuscular Suture in Jameson s Recession for Squint M Lombardo Brooklyn—p 523
Corneoscleral Dermoid in Guinea Pig E Chan Baltimore—p 525
Studies in Ocular Fatigue IV Fatigue of Accommodation Experimental and Clinical Observations C Berens and Elizabeth K Stark, New York—p 527

American Journal of Psychiatry, Baltimore

11· 1025 1228 (May) 1932

Conflict and Integration in Schizophrenic Development E Kahn and L H Cohen, New Haven Conn—p 1025
Cardiorespiratory Variations in Personality Studies J A Larson and G W Haney, Chicago—p 1035
Psychologic Changes in Normal and Abnormal Individuals Under Influence of Sodium Amytal E Lindemann, Iowa City—p 1083
Concerning Emotion as Impulsion and Instinct as Orientation J C Whitehorn, Waverley, Mass—p 1093
Children s Institute of Allentown State Hospital H I Klopp, Allentown, Pa—p 1107
*Auditory Hallucinations in Nonpsychotic Children M Levin, Harrisburg Pa—p 1119
The Dementia Praecox Child Winifred Richmond Washington, D C—p 1153
Contribution to the Early Development of Ego L P Clark, New York—p 1161
Scope of Psychotherapy in Schizophrenia P Schilder, New York—p 1181

Auditory Hallucinations in "Nonpsychotic" Children.—Levin presents four case histories of boys who had true auditory hallucinations The boys were "nonpsychotic" in the sense that they showed no acute psychotic disturbances, differing in this respect from the vast majority of the cases already recorded—cases which concern children who develop unmistakably psychotic states with hallucinations, usually at puberty. In all, twenty-four episodes were reported by these boys The episodes are recorded in detail, attention being given to setting, content, and so on Two of the boys showed what probably are early symptoms of a schizophrenic reaction, although at the time of the study the evidence was not conclusive The other two boys, while maladjusted, showed nothing suggestive of schizophrenia or any other psychosis All four boys were below the average in intelligence, two of them conspicuously so The hallucinatory episodes were studied with regard to the quality of the hallucinatory perception, the localization, the presence of accessory sensations, the content and the apparent "functions" that are involved

American Review of Tuberculosis, New York

25: 673 776 (June) 1932

*Pregnancy in the Tuberculous F L Jennings and E S Mariette, Oak Terrace, Minn and J C Litzenberg, Minneapolis—p 673
Biometric Study of Pregnancy and Tuberculosis F L Jennings and E S Mariette, Oak Terrace, Minn—p 687
*Studies on Functional Hematopoietic Test in Pulmonary Tuberculosis T J Curphey and H K Russell, Valhalla, N Y—p 695
Chemical Composition of Active Principle of Tuberculin XV Precipitated Purified Tuberculin Protein Suitable for Preparation of Standard Tuberculin Florence B Seibert and Betty Munday, Chicago—p 724
*Juvenile Tuberculosis Suspects Evaluation of Clinical and Roentgenologic Observations in Relation to Diagnosis and Grade of Tuberculin Reaction L Wolff, R S Store and F Eberson, San Francisco—p 738
Clinical Notes on Renal Tuberculosis in Adults L V Schneider, Baltimore—p 746
Technic of Using Paper Films for Roentgenograms of Chest Margaret Witter Barnard, J B Amberson, Jr, and Marion Franklin Loew, New York—p 752

Pregnancy in the Tuberculous—Jennings and his associates believe that six months after labor is a sufficient time for any harmful effects of pregnancy or labor to appear, and therefore reviewed their full-term group of twenty-seven tuberculous gravidas at that time with observations as follows One died, three became worse, seven remained unchanged, ten improved and four were discharged and are caring for their own homes Two others were delivered less than six months before the study was made, one of whom is improving and the other has shown a slight extension None of the women with minimal tuberculosis were harmed by pregnancy or labor However, the authors are not recommending pregnancy for the tuberculous patient In fact, pregnancy in a tuberculous woman is to be avoided, but when it occurs it must be dealt with, either by interruption of pregnancy or by allowing the woman to go to term They have had gratifying results by carefully treating the tuberculosis while permitting the mother to go to term Out of twenty-seven patients thus treated, only two have died The authors believe that pregnancy should be terminated when complications arise which would call for this procedure in a nontuberculous woman Emphasis is laid on the removal of the baby from the tuberculous mother immediately after birth, for the sake of both

Hematopoietic Test in Pulmonary Tuberculosis—A functional test based on the activity of the hematopoietic system is offered by Curphey and Russell for the study of tuberculous patients They have found that the degree of clinical activity in tuberculosis appears to be in direct relationship to the nature of the hematopoietic response following the intracutaneous injection of either tuberculin or milk The hematopoietic response is in no sense a specific one, so far as the inciting agent is concerned The simplicity of the test and the accuracy of the information obtained recommend it not only as an added means for study of the disease in the hands of those specially trained but also as an aid to those who lack special facilities for the study of the tuberculous patient

Juvenile Tuberculosis Suspects—From the study of a group of children suspected of being tuberculous, Wolff and his associates conclude that in establishing a diagnosis of a tuberculous infection 1 The symptoms and physical signs are not conclusive 2 A history of definite contact is of rather limited value 3 Some roentgenologic observations are pathognomonic 4 The grade of the tuberculin reaction is of definite value in this group It also appears to have a value in deciding the question of the activity of the lesion

Archives of Otolaryngology, Chicago

15: 671-804 (May) 1932

Malformation of Auditory Apparatus in the New-Born Associated with Ectopic Thymus E W Hagens, Chicago.—p 671.
*Paranasal Sinusitis: Opaque Displacement Diagnosis K. W. Amano, Philadelphia.—p 681
Suppuration of Petrous Pyramid Report of Two Cases. H. I Lillie and H. L. Williams, Rochester, Minn.—p 692
Malignant Disease of Tonsil, with Especial Reference to Lymphosarcoma. E. F. Ziegelman, San Francisco.—p 697
*Odontoma of Maxillary Sinus A O Freedman, Montreal, Canada.—p. 710.
*Natural Orifice of Maxillary Sinus II Clinical Studies. M. C. Myerson, New York.—p 716
Relationship of Oral and Pharyngeal Abnormalities to Speech D C. Lyons, Jackson, Mich.—p. 734
*External Operation on Frontal Sinus. Causes of Failure. C. M. Anderson, Rochester, Minn.—p 739
Toxoid in Treatment of Atrophic Rhinitis L B Bernheimer, Chicago.—p. 746
Anatomy and Physiology of the Ear Review of Literature from October, 1930, to October, 1931. P E Meltzer, Boston.—p 755

Paranasal Sinusitis.—Amano calls attention to the fact that the roentgenographic examination of the nasal sinuses following the administration of iodized oil by the displacement method furnishes additional information as to whether the drainage from the ostia is satisfactory or whether the sinuses or cells are filled with thickened membrane or pus. Negative results after the administration of iodized oil, however, do not always exclude the possibility of disease. The practical value of the opaque displacement method in the diagnosis and treatment fluctuates according to nasal complications, such as hypertrophied turbinates, especially the middle turbinates, and polypi. The removal of these obstructions should be advised before the final roentgenographic examination by the displacement method. The results of the administration of iodized oil by the Proetz method only in his supine position are more accurate in the case of the ethmoid and sphenoid sinuses than in the case of the maxillary and frontal sinuses For the maxillary sinuses, the iodized oil should be injected by puncture through the inferior meatus or by cannula through the natural ostium. The advanced prone or knee-chest position of the displacement method described by the author is recommended, after the Proetz method with the supine position is practiced, in order to give better results in the administration of iodized oil, especially into the frontal sinuses and the anterior ethmoid cells.

Odontoma of Maxillary Sinus.—According to Freedman, a large odontoma of the maxillary antrum is comparatively rare. The majority of odontomas are small, the larger ones usually invade the lower jaw. The diagnosis is not difficult. In a case reported by the author, however, the clinical diagnosis was somewhat obscured by the fact that there was a sinus over the exposed surface of the tumor, suggesting the possibility of malignancy. The treatment is surgical removal intra-orally. The case described was complicated by the presence of a chronic antral suppuration with formation of polypi. The large gaping wound in the maxilla, caused by the removal of the tumor, necessitated two subsequent minor plastic operations to close the fistula leading into the antrum at the outer angle of the wound.

Natural Orifice of Maxillary Sinus.—An attempt was made by Myerson to enter the normal ostium in 170 maxillary sinuses; 138, or 81 per cent, were successfully entered, and 32, or 19 per cent, could not be entered. The Pierce cannula and the author's modification of this instrument were used. It should be remembered that the ostium lies horizontally, obliquely and vertically. In this series 34 were horizontal, 6 oblique and 98 vertical. The proximity of the middle turbinate to the lateral wall does not appear to interfere with the passage of a cannula into the maxillary ostium There may be an occasional exception; in this study there was 1 in 138 instances. The height or prominence of the uncinate and the depth of the infundibulum do not always interfere with the successful passage of the cannula. The angle (bulla-uncinate angle) formed by the posterior upward curve of the bulla and the posterior downward curve of the uncinate is the most constant guide to the location of the ostium On the basis of his observations the author concludes that irrigation of the maxillary sinus through its ostium is a feasible procedure in a sufficiently large percentage of cases to make it worthy of a trial.

Frontal Sinus Operation.—The principal preventable causes of failure of the external operation on the frontal sinuses in a group of cases studied by Anderson were (1) incomplete operation; (2) failure to obliterate completely the sinus cavity in the Killian type of operation; (3) in the Lynch type of operation, the collapse of the soft parts and contracture of the scar closing off the nasofrontal duct; (4) failure to provide adequate room for proper drainage through the nose; (5) failure to maintain the nasofrontal duct long enough after the operation; (6) too early surgical intervention in acute infections, and (7) failure to remove completely all the ethmoid and fronto-ethmoid cells connected with the frontal sinus. The author considers that the selection of the type of operation to be employed in any given case is extremely important and should be suited to the particular problem presented. If there has been considerable destruction of the outer wall of the sinus, changing the contour of the face is not a serious consideration, and the patient must be assured of a relatively high percentage of cures; in such cases the Killian type of operation is employed. If the normal contour of the forehead must be preserved even at a greater risk of not obtaining an entirely satisfactory result, some type of operation which preserves the anterior wall of the frontal sinus should be selected. The bony walls should be preserved sufficiently to prevent collapse of the soft parts, and the nasofrontal duct should be maintained by means of a drainage tube for a long time. The two-stage operation in which the intranasal portion of the operation is done a considerable time prior to the external operation has proved of great value.

Archives of Pathology, Chicago

13: 691-856 (May) 1932

*Histogenesis of Atrophic Cirrhosis V H Moon, Philadelphia.—p 691.
Effect of Diacetone Alcohol on Liver of Rat H. M Keith, Rochester, Minn.—p 707
*Multiple Ganglioneuroma. H. Haven and A. Weil, Chicago.—p 713.
*Hurthle Cell Tumor. A. A. Eisenberg and H. Wallerstein, New York.—p 716
Radiate Formation Due to Hyphomycete (Aspergillus?) as Seen in Pulmonary Granulomatosis of Capybara (Hydrochoerus Hydrochoerus): Nature of Fungus Incrustments in General. F D. Weidman, Philadelphia.—p 725.
*Tissue Changes Following Continuous Intravenous Injection of Epinephrine Hydrochloride into Dogs P C Samson, Chicago.—p 745.
*Avitaminosis: III. Pathologic Changes in Tissues of Albino Rat During Early Stages of Vitamin A Deficiency. H. S Thatcher, Little Rock, Ark., and B Sure, Fayetteville, Ark.—p 756
Resistance to Insulin Response to Insulin in Rabbits During Leukocytosis Induced by Sodium Nucleinate. I. T. Zeckwer, Philadelphia.—p 766
Origin and Antiquity of Syphilis Evidence from Diseased Bones: Review, with Some New Material from America H U. Williams, Buffalo.—p 779

Atrophic Cirrhosis.—Moon calls attention to the fact that atrophic cirrhosis is the result of a progressive inflammatory process, proliferative rather than exudative. This process shows variation in activity and may be seen in latent or healed stages. The most active process is seen in juvenile cases. The latent stages are seen most often in adult life The acuteness or latency of the process frequently parallels the clinical manifestations There is evidence, in active cirrhosis, that degeneration and destruction of liver cells precedes the replacement by connective tissue. No morphologic reason is found for placing cirrhosis with fatty changes in a separate class. Cocci may be demonstrated frequently in sections of active cirrhosis. This observation lends support to the supposition that infection is an important etiologic factor.

Multiple Ganglioneuroma.—Haven and Weil report the first case, as far as they can determine, in which ganglioneuromas of benign type were found simultaneously in the cervical and abdominal regions. One of the tumors was located in the region of the stellate ganglion, the others retroperitoneally.

Hürthle Cell Tumor.—According to Eisenberg and Wallerstein, the Hurthle cell, as an integral part of the thyroid, does not exist because it is not always present in the gland, it is identical with the parathyroid oxyphilic cells of Welsh, and it takes its embryologic origin in close relationship with the parathyroid. Hürthle cell tumor of the thyroid is a misnomer because it leads to the erroneous impression that it originates from the tissue of the thyroid. The tumor really originates from parathyroid rests within the thyroid and is an example of parastruma; in its relationship to the thyroid, it corresponds to renal hypernephroma. The symptoms of convulsions and constriction exhibited in a case reported by the authors suggest secretion of the parathyroids.

Intravenous Injection of Epinephrine.—Samson administered epinephrine hydrochloride intravenously to dogs at constant rates over relatively long periods (up to thirteen days). The amounts injected varied from 59 to 246 mg. Consistent tissue changes were found in the liver, kidneys, hypophysis and suprarenals. The pancreas, aorta, spleen, smooth and striated muscle and lungs were found unchanged. The liver showed an intracellular fatty change. In the cases in which the liver was the least affected, small droplets of fat were deposited in the cells surrounding the central vein of the lobule. With more advanced change, the peripheral cells of the lobules contained fat droplets, and the cytoplasm of the central cells was almost entirely replaced by fat. The kidneys showed a fatty change in the cells of Henle's loop and rarely in the cells of the collecting tubules. In the anterior lobe of the hypophysis there was loss of the secretory substance of the chromophobe cells. The alpha cells showed in general a hyperacidophilic staining reaction, appeared to be increased in number and showed a conspicuous distribution in layers around many of the blood spaces. There was a decrease in the number and size of the basophilic cells. In the cortex of the suprarenals, many of the cells showed an altered staining reaction, and there was apparently a decreased endogenous secretion of epinephrine as the result of the injection of epinephrine hydrochloride. The author suggests that the action of epinephrine on certain animal tissues is in part a toxic or a degenerative one.

Avitaminosis. — Thatcher and Sure found metaplastic changes in the posterior part of the tongue, in the salivary glands, and in the respiratory and urinary tracts during early stages of vitamin A deficiency in a large proportion of albino rats that made normal growth, some of which showed incipient ophthalmia or persistence of the cornified stage of estrus as the only sign of vitamin A deficiency, and others of which showed no external signs of A avitaminosis. Bronchitis and pneumonia were also found in several animals that still made slight gains in weight before the termination of the experiment. The authors suggest that metaplasia of epithelial structures in the respiratory tract of man may be the precursor of the common cold, bronchitis and bronchopneumonia resulting from vitamin A deficiency, before any other external symptoms are detected by physical diagnosis.

Archives of Surgery, Chicago

24: 893-1081 (June) 1932

*Experimental Study of Bone Repair: Effect of Thyroparathyroidectomy and of the Administration of Parathormone. C. A. Dragstedt and J. E. Kearns, Jr., Chicago.—p. 893.
*Tennis Elbow (Epicondylitis) Caused by Radiohumeral Bursitis: Anatomic, Clinical, Roentgenologic and Pathologic Aspects, with Suggestion as to Treatment. L. Carp, New York.—p. 905.
*Diverticulosis of Appendix. F. W. Mulsow, Cedar Rapids, Iowa.—p. 923.
*Dupuytren's Contraction, with Note on Incidence of Contraction in Diabetes. J. S. Davis, Baltimore, and E. M. Finesilver, Newark, N. J.—p. 933.
Ununited Fractures. W. C Campbell, Memphis, Tenn.—p 990.
*Therapeutic Venous Occlusion, Its Effect on Blood Flow in Extremity in Acute Arterial Obstruction. M. L. Montgomery, Chicago.—p. 1016.
Lateral Cervical Tumors of Aberrant Thyroid Tissue. A. R. Moritz and F. Bayless, Cleveland.—p. 1028
*Intravenous Sodium Amytal as Adjunct in Anesthesia. H. K. Ransom, Ann Arbor, Mich.—p. 1044.
Variations in Phosphatase and Inorganic Phosphorus in Serum During Fracture Repair. A. Hunsberger, Jr., and L. K. Ferguson, Philadelphia.—p. 1052
Sacrococcygeal Chordoma. V. E. Chesky, Halstead, Kan.—p. 1061.
Forty-Seventh Report of Progress in Orthopedic Surgery. P. D. Wilson, M. N. Smith-Petersen, L T. Brown, J. G Kuhns, E. F. Cave and S. M. Roberts, Boston; R. K. Ghormley, Rochester, Minn.; J. E. Milgram, New York; J. A. Freiberg, Cincinnati, and G. Perkins, London, England.—p. 1068.

Experimental Study of Bone Repair.—Dragstedt and Kearns call attention to the fact that the rate of repair of a defect in the dog's femur is reasonably consistent throughout a series of animals if all are healthy and show a good appetite during the experimental period. Dogs that are sickly from distemper, diarrhea or other causes show a definite though not great impairment of the rate of bone repair. This fact should be taken into consideration in all experimental work on growth of bone or repair after injury or fracture. Thyroparathyroidectomy in the dog definitely delays the healing of a bone defect. Healing goes on to completion, however, and is less delayed and approximates the normal if the administration of calcium is such as to maintain the blood calcium level nearly normal. The presence of the parathyroid hormone itself does not seem to be necessary for the process of calcification and ossification. The effect of parathyroid extract on the repair of a bone defect is somewhat complicated. In several dogs observed by the authors the administration of parathyroid extract was followed by the very early appearance of calcium deposition in the callus as judged by roentgenograms, conveying the impression of a facilitated repair. The time of complete healing, however, was not changed. When parathyroid extract was given in reasonably large amounts throughout the experimental period, a definite impairment of healing could be seen. Such dogs, however, frequently exhibited bloody diarrhea and loss of appetite, effects that complicate the interpretation. It does not appear probable that the administration of parathyroid extract will facilitate bone repair in any case except one of parathyroid deficiency. Thyroid deficiency uncomplicated by parathyroid deficiency did not delay the healing of a bone defect.

Epicondylitis Caused by Radiohumeral Bursitis.—According to Carp, an inflammatory involvement of the conjoined tendon at the epicondyle or of a structure in close proximity to it may produce the clinical syndrome known as tennis elbow. One of these structures is the radiohumeral bursa, the anatomy of which is discussed. It is recommended that in all cases of tennis elbow a roentgenogram be made in order to try to visualize an osteitis of the epicondyle or a pathologic and distended radiohumeral bursa. The visualization of the latter condition depends on the character of the fluid contained or of the deposit in the wall. The presence of calcium salts produces a shadow. The author reports eight cases of radiohumeral bursitis in which excellent results were obtained with different types of therapy. Five patients were males and three females. Direct trauma produced the lesion in two cases, indirect trauma in three, combined direct and indirect trauma in two and a questionable trauma in one. Swelling over the bursa was present in five cases, and there were positive roentgenographic findings in five. The operative finding in one case was a calcified radiohumeral bursa. In three other cases the spontaneous absorption of calcium deposits was noted. In the remaining four cases, manipulative rupture of the bursa was the method of treatment used. Radiohumeral bursitis, especially in the presence of swelling, is frequently the cause of tennis elbow. Prompt relief may be expected from rupture of the bursa by firm digital pressure applied over the epicondyle and radiohumeral joint. When this procedure is very painful, a general anesthetic is advisable. Operative therapy is not recommended unless conservative therapy fails to relieve prolonged or recurrent pain and disability.

Diverticulosis of Appendix.—Mulsow believes that diverticula of the appendix are more frequent than the reports in the literature would indicate. He reports nine cases that he observed in the examination of 661 appendixes during the past two years. The presence of a diverticulum in an appendix is of much more importance clinically than it has been considered to be by most writers reporting such cases. It appears that diverticula are more often than is realized the cause of sudden or unexpected perforations in so-called chronic appendicitis or recurring and acute appendicitis.

Dupuytren's Contraction.—Davis and Finesilver state that the disease of the palmar aponeurosis in Dupuytren's contraction is a focal hypertrophy of the connective tissue originating in the walls of the smallest vessels and ending in contraction. While the etiology is obscure, it seems warranted to conclude that the contraction is of idiopathic origin, that it is most apt to occur in middle age and the senile period, and that it shows an hereditary influence. It occurs in all social classes and is much more commonly found in men than in women. There is no single constitutional disease with which it is exclusively associated or of which it is a manifestation. In the majority of cases it does not appear to be specifically caused by trauma or local irritation, though this factor, as well as local or constitutional pathologic conditions, seems at times to have some exciting or contributing influence. In the authors' experience the incidence of Dupuytren's contraction in patients with diabetes mellitus is considerably higher than in the same number of persons, otherwise comparable, without diabetes. The diagnosis is frequently confused by those unfamiliar with the condition with flexion of the fingers due to contraction of the tendons and with congenital contractions. Up to the present time, surgical intervention promises the only permanent cure. This is best accomplished by as complete an excision of the fascia of the palm and its digital fasciculi as is practicable.

Therapeutic Venous Occlusion.—Montgomery describes experiments in which he demonstrated in heparinized animals under sodium barbital anesthesia that after ligation of the superficial femoral artery: 1. Ligation of the concomitant, superficial femoral vein causes no increase in the per minute volume flow of blood through the iliac artery but causes either no change or a slight decrease during the period of examination (from eight to fifteen minutes). 2. Obstruction of the proximal venous return by ligation of the iliac vein, the common iliac vein or the inferior vena cava causes a pronounced decrease in the per minute volume flow of blood, the decrease being more marked the more cephalad the ligature is placed. 3. In confirmation of the observations of Van Kend, Brooks and Martin and others, obstruction of the venous return increases the peripheral arterial and venous blood pressure and, in general, the increase is more marked the higher (more cephalad) the ligature is placed. Because of the marked decrease in the flow of blood which follows obstruction of the venous return proximal to the point of arterial occlusion, and because of the possible danger of producing a serious venous stasis thereafter, it would appear that the use of this principle in the treatment of patients requiring ligation of the main artery of an extremity should be avoided. The employment of ligation of the concomitant vein for occlusions of the injured, but otherwise healthy, popliteal artery is strongly supported by the clinical data. Its use in other locations is still a subject for debate and should await further experimental and clinical studies. The author believes that for the present, in the treatment of acute obstructions of the main arterial supply of an extremity, except the popliteal artery, in the absence of injury to the concomitant vein it seems wise to await the appearance of impending gangrene before resorting to ligation of the vein.

Intravenous Sodium Amytal as Adjunct in Anesthesia.—Ransom calls attention to the fact that sodium amytal administered intravenously is a valuable basal anesthetic for nitrous oxide-oxygen. A better quality of anesthesia and more complete muscular relaxation can be obtained than with nitrous oxide and oxygen unassisted. A considerably higher percentage of oxygen is possible than with gas alone, thus tending to decrease the objectionable cyanosis and making for a greater margin of safety. The easy, quiet induction, along with the slow and gradual awakening, is appreciated by the patient. In nervous patients, or in cases of toxic goiter, the anesthetic can easily be given in the patient's room without exciting suspicion, thus greatly facilitating the "steal" type of operation. Postoperative nausea and vomiting are not greater than with nitrous oxide and oxygen unaided. There is usually an initial fall in blood pressure amounting to 29 mm. of mercury, or 22 per cent, which might be regarded as a contraindication to its use in certain cases; e. g., shock. When used as a basal anesthetic with gas, the incidence of pulmonary complications is not increased.

Arkansas Medical Society Journal, Little Rock

28: 223-242 (May) 1932

Arthritis as Manifestation of Bacteriologic Allergy. M. F. Lautman, Hot Springs.—p. 223.
*Carcinoma of Cervix Uteri. W. R. Brooksher, Jr., Fort Smith.—p. 225.
Abscess of Tongue: Two Case Reports. P. L. Mahoney, Little Rock.—p. 227.

Carcinoma of Cervix Uteri.—Brooksher enumerates thus the contraindications to the use of radium in carcinoma of the cervix uteri: 1. General emaciation and cachexia; in such cases rapid deterioration and death may ensue. 2. A red cell count below 3,000,000 or a hemoglobin of less than 40 per cent; radium may increase the anemia to a dangerous degree. 3. Hydronephrosis or pyonephrosis; the fibrosis produced may increase the obstruction present. 4. Rectovaginal and vesicovaginal fistulas; intense local irritation with sloughing may be produced. 5. Pelvic inflammatory disease; massive necrosis is the likely consequence (this applies also to a foul sloughing condition of the growth itself). 6. Cases in which the whole pelvis is extensively infiltrated with extension from the cervical growth; the end appears to be hastened. 7. Impaired metabolism. A proper dose must cause destructive radiation to reach all cancer cells and at the same time affect the surrounding tissue as little as possible. Usually from 4,000 to 6,000 milligram hours of heavily filtered radium is applied to the cervix and broad ligament regions supplemented with cross-fire roentgen therapy to the pelvis. Saline douches are employed until ulceration is healed, and frequent follow-up examinations should be made to detect possible recurrences.

Canadian Medical Association Journal, Montreal

26: 647-764 (June) 1932

*Normal and Morbid Physiology of Thyroid Gland. E. W. H. Cruickshank, Halifax, N. S.—p. 647.
Injuries of Crucial Ligaments of Knee Joint, with New Method of Operating for Repair of Posterior Ligament. F. J. Tees, Montreal.—p. 653.
Four Cases of Osteogenesis Imperfecta in One Family. W. G. Turner and N. W. McLellan, Montreal.—p. 659.
Blastomycosis of Gingiva and Jaw. A. Crich, Toronto.—p. 662.
*Curative Effects of Cereals and Biscuits on Experimental Anemias. Pearl Summerfeldt, F. F. Tisdall and A. Brown, Toronto.—p. 666.
The Blood in Pregnancy. J. D. Adamson and F. H. Smith, St. Boniface, Manit.—p. 669.
Sympathectomy in Case of Retinitis Pigmentosa. G. Campbell, Vancouver, B. C.—p. 674.
*Blindness from Methyl Alcohol Successfully Treated by Lumbar Puncture. G. H. Mathewson and B. Alexander, Montreal.—p. 679.
Friedlander's Pneumonia: Case. E. H. Bensley, Montreal.—p. 681.
Irradiation Therapy: Its Scope and Practical Application. D. Quick, New York.—p. 685.
Fluids in Surgery. B. J. Brandson and J. A. Hillsman, Winnipeg.—p. 689.
Sequence of Events in Some Cases of Headache. N. B. Gwyn, Toronto.—p. 699.
Classification of Mental Diseases. D. E. Cameron, Brandon, Manit.—p. 702.
Small Outbreak of Anterior Poliomyelitis. M. A. Stalker, Ormstown, Que.—p. 706.

Physiology of Thyroid.—Cruickshank calls attention to how deeply the thyroid is involved in the control of endocrine function within the human organism, in the regulation of general body growth, and in the proper functioning of the higher nerve centers. The manifold questions which continue to arise with regard to its function are the outcome of its complex interrelation with almost every tissue in the body. The question as to whether the causative factor which produces increased activity of the gland, as seen in hyperthyroidism, is neurogenic or not and is distinct from that which causes the signs and symptoms of thyrotoxicosis remains for further investigation. The physiology of the endocrine glands has altered the outlook on many of the problems which have to be faced both by the scientist and the clinician. It is clear that if one is fully to understand the complex function of, and even attempt to classify, the various types of thyroid disorder with which the clinician is faced, it must be through a correlation and correct interpretation of all the experimental data available.

Cereals in Experimental Anemias.—Summerfeldt and her associates report that rats when placed on an exclusive milk diet after weaning developed a secondary anemia of the nutritional type in from five to eight weeks. In these rats the hemoglobin was reduced from 4 to 6 Gm. per hundred cubic centimeters of blood, instead of the normal value at this age of 13 to 15 Gm. This anemia could be cured when from 33 to 50 per cent of the total diet consisted of a special cereal or a special biscuit in which there was a relatively high proportion of copper and iron. Other foods tested were farina, oatmeal, zwieback, arrowroot and whole wheat biscuits. These did not cure anemia when fed in the same proportions. The authors also investigated the influence of different cereals on the weight of two groups of children. One group was given in the diet ordinary cereals, such as farina, wheatena or oatmeal, while the second group received the same quantity of the special cereal. The groups were kept on the diet for ten weeks, and at the end of this time the diets were reversed for the next ten weeks. The daily intake of cereal was 4 ounces (113 Gm.).

In the case of the special cereal this supplied 27.2 mg. of iron daily, while the ordinary cereals supplied only 1.2 mg. daily. The children on the special cereal made an average gain of 1.2 Gm. of hemoglobin per hundred cubic centimeters of blood, while those on the ordinary cereal made no gain at all.

Blindness from Methyl Alcohol Treated by Lumbar Puncture.—Mathewson and Alexander report a case of methyl alcohol poisoning in which the blindness was successfully treated by lumbar puncture. From a consideration of all the facts they advise that in this condition the following treatment be instituted as soon as possible: (1) repeated gastric lavage during the first four or five days to remove the alcohol excreted by the gastric glands; (2) a large fluid intake to dilute the poisons circulating in the blood stream; (3) pilocarpine sweats and hot packs daily to aid elimination through the skin, and (4) and most important, the withdrawal of as large an amount of cerebrospinal fluid as possible daily, for four or five days. The pressure should not be allowed to fall below 100 mm. of water, to dilute and mitigate the attack of the poisons on the central nervous system, especially the eye. This treatment, of course, is to be used whether the eyesight is damaged or not.

Journal of Bacteriology, Baltimore

23: 355-428 (May) 1932

Selection of Dilution Water for Bacteriologic Examinations. C. T. Butterfield, Cincinnati.—p. 355.
Oxidation-Reduction Potentials in Relation to Growth of Aerobic Form of Bacteria. W. P. Allyn and I. L. Baldwin, Madison, Wis.—p. 369.
Anomalous Behavior of Tubercle Bacillus as Gram-Positive Organism with High Resistance to Gentian Violet. Esther Wagner Stearn and A. E. Stearn, Columbia, Mo.—p. 399.
Decomposition of Proteins by Micro-Organisms, with Particular Reference to Purified Vegetable Proteins. S. A. Waksman and R. L. Starkey, New Brunswick, N. J.—p. 405.

Journal of Experimental Medicine, New York

55: 829-999 (June) 1932

Comparison of Reducing Power of Some Typical Transplantable Tumors and Tumors Produced by Filtrable Viruses, with Appendix on Metabolism of Infectious Myxoma of Rabbit. E. S. G. Barron, Chicago. —p. 829.
Antipneumococcic Immunity Reactions in Individuals of Different Ages. W. D. Sutliff and M. Finland, Boston.—p. 837.
*Specific Antibody Response of Human Subjects to Intracutaneous Injection of Pneumococcus Products. M. Finland and W. D. Sutliff, Boston.—p 853
Reactions of Rabbits to Intracutaneous Injections of Pneumococci and Their Products: VIII. Interrelationships of Hypersensitiveness to Pneumococcus and Streptococcus. L. A Julianelle and M. C. Morris, St. Louis.—p. 867.
Antipneumococcus Properties of Normal Swine Serum. W. H. Kelley, New York.—p. 877.
*Spontaneous and Acquired Active Immunity to Phenomenon of Local Skin Reactivity to Bacterial Filtrates. G. Shwartzman, New York. —p. 889.
Relation of Heart Weight to Basal Metabolism as Varied by Thyroid Administration. F. M. Smith and E. M. MacKay, La Jolla, Calif. —p. 903.
Virus Disease of Parrots and Parrakeets Differing from Psittacosis. T. M Rivers and F. F. Schwentker, New York.—p. 911.
Therapeutic Value of Intramuscular Dosage of Type I Pneumococcus Antiserums. T. J. Curphey and H. B. Baruch, New York.—p. 925.
*Vaccination Against Yellow Fever with Immune Serum and Virus Fixed for Mice. W. A. Sawyer, S. F. Kitchen and W. Lloyd, New York.—p. 945.
Anemia of Scurvy: Effect of Vitamin C Diet on Blood Formation in Experimental Scurvy of Guinea-Pigs. S. R. Mettier and W. B. Chew, San Francisco.—p. 971.

Antibody Response to Pneumococcus Products.—The blood of sixty-three human subjects selected because of the absence of recent infections was studied by Finland and Sutliff for its content of specific antibodies against virulent strains of types I, II and III pneumococci before and after intracutaneous injections of minute amounts of pneumococcus products. The simultaneous injection of the specific polysaccharides of all three types of pneumococci and of proteins and autolysates derived from types I and II pneumococci was followed by the appearance or increase of pneumococcidal power in the whole defibrinated blood and, in most instances, by the appearance of mouse-protective antibodies and agglutinins for one or more types. A single intracutaneous injection of 0.01 mg. of the protein-free type-specific polysaccharide of either type I, type II or type III pneumococci or four similar daily injections was followed, in most of twenty-nine subjects, by the appearance of antibodies against the homologous but not against the heterologous type pneumococci. Some s
lowering of a preexisting pneum
gous or homologous types. A sing
0.1 mg. of pneumococcus protein in
followed by the appearance of spec
ciable degree. Single intracutaneou
of autolysates derived from virulent
pneumococci were followed in ele
less general rise in the pneumococci
ance of homologous type agglutinin
in about one third of the subjects.

**Immunity to Phenomenon of Lo
Bacterial Filtrates.**—Shwartzman
which he demonstrated spontaneous
phenomenon of local skin reactivity
one experiment the immunity was non
it appeared limited to one or two bacteri
vaccination of rabbits with bacterial
immunity to the phenomenon. The spec
was tested with graded amounts of toxic
intradermal and intravenous immunizatio
elicited two types of response; namely,
which was obtained in rabbits highly s
nomenon (i. e., showing reactions with
(2) nonspecific immunity, which was eli
partial spontaneous immunity (i. e., showin
1 reacting unit but susceptible to 15 uni
Comparative studies on the reacting potency
and disintegrates (Besredka's method, fre
method) showed that the first washings o
considerably stronger than subsequent was
grates. These facts demonstrate once agai
nature of the material necessary for the ph

Yellow Fever Vaccination.—After pr
ments in monkeys, Sawyer and his associates
persons by a single injection of a dried mixtur
fever virus, fixed for mice, and human imm
separate injections of enough additional serum
amount required for protection. One person
immunized by injecting immune serum and dr
rately. By titration of the serums of vaccina
mice, it was shown that the immunity rose in
a height comparable to that reached after an at
fever and remained there throughout an observat
six months. Yellow fever virus could not be re
the blood of vaccinated persons or monkeys, exce
latter had received less than the minimal effectiv
immune serum. Neutralization of yellow fever viru
serum took place very slowly in vitro at room tem
the authors' experiments, and could not have been
ciable factor in vaccination with the serum virus
A mixture of fixed virus and immune serum re
immunizing power for eight months when dried in th
state and sealed in glass. It appears that the im
reaction after yellow fever vaccination was a part o
infectious process, as was also the observed leukopenia.

Journal of Preventive Medicine, Chicago

6: 145-248 (May) 1932

*Statistical Analysis of Outbreak of Acute Anterior Poliomye
San Francisco in 1930. J. C. Geiger and J. P. Gray, San Fr
—p. 145.
Susceptibility of Bats to Infection with Horse Trypanosome, Tr
soma Hippicum Darling, in Panama. L. H. Dunn, Panama, Re
of Panama.—p. 155.
State-Wide Study of Human Intestinal Helminths in Tennessee. A
Keller, W. S. Leathers and E. L. Bishop, Nashville, Tenn.—p.
American Administrative Practice in the Control of Scarlet Fe
G. B. Darling and J. E. Gordon, Detroit.—p. 185.
Immunity to Superinfection and Cross-Immunity in Malarial Infecti
of Birds. W. Gingrich, Chicago.—p. 197.

Poliomyelitis in San Francisco in 1930.—Geiger and Gray call attention to the fact that the outbreak of poliomyelitis in San Francisco and in California as a whole during 1930 was the most extensive yet recorded for these districts. The incidence for San Francisco began to be above the average in June, 1930, and continued in epidemic proportions through the following March; 245 local and 50 nonlocal cases and 32 deaths were recorded during this period. No part of the city was free from the disease, and the prevalence was directly proportional to the density of population. More than 75 per cent of the patients were hospitalized. Males were affected more frequently than females (ratio, 3:2); deaths were evenly divided between the sexes. While a preponderance of the cases occurred in the younger age groups, there were not a few in the older groups, even into the fifth and sixth decades. The fatality rate was higher among adults than in the lower age groups. An attempt was made to determine the types of onset and the symptoms and signs predominant in the early stages of the disease. In the cases that could be classified definitely, the gastro-intestinal type of onset was most frequent, with vomiting or constipation or both as the most prominent signs in the clinical picture. Diarrhea was uncommon. An analysis of the signs tabulated in the central nervous system type of onset would be unsatisfactory because of the lack of definition of the degree of severity and the added factor of varied interpretation by different observers. It may be stated, however, that retraction of the head, indicating meningeal irritation in most instances, occurred with some frequency. Headache, a valuable symptom under certain circumstances, is also difficult of analysis because of the personal equation, but it should be pointed out that, while headache of moderate type was most frequent in the case histories, the severe type was not rare. Fever was present in all but a few cases; the moderate range predominated, although there were numerous instances of relatively high temperatures. Attention has often been directed to the various types and degrees of pain in the early stages of poliomyelitis, causing frequent errors in diagnosis. Pain is usually present, varying from generalized pain comparable to what is seen in true influenza to pain localized in a single muscle group. Pain in the extremities generally preceded paralysis of the part involved and hence is a sign of value in prognosis. The most frequent locations of pain were the neck and back regions, with leg pains and generalized pain next in frequency. A definite interval between the onset of the disease and the onset of paralysis occurred in 154 of the local cases, this interval lying between two and five days in 116 instances (70 per cent). In the nonlocal series the same relative proportion obtains. In the paralytic cases, the many parts and the many combinations of parts paralyzed make detailed classification difficult. Involvement of the extremities, either singly or in combination, was most frequent, occurring in all but twenty-five of the paralyzed cases among the local group and in all but five of the corresponding cases in the other group. The use of convalescent serum appears to have been judicious. Of 167 local patients receiving serum, 109 (65 per cent) were treated on or before the third day, and 140 (83 per cent) on or before the fifth day. It is generally accepted that the serum, to be of benefit, must be administered before the onset of paralysis. Of the 167 local serum-treated patients, 90 (53 per cent) showed definite or apparent improvement, while 30 (18 per cent) showed no improvement. The same relative proportion obtained for a nonlocal group.

Journal of Urology, Baltimore

27: 507-606 (May) 1932

*Surgery of Hypospadias and Epispadias in Male. A. B. Cecil, Los Angeles.—p. 507.

*Primary Epithelioma of Urethra. T. J. Kirwin, New York.—p. 539.

Solitary Papilloma of Lower Ureter (Right) Secondary to Recurrent Papillomas of Bladder. H. A. Fowler, Washington, D. C.—p. 561.

*Congenital Solitary Hydronephrotic Infected Kidney; Pyelo-Ureteroplasty. T. D. Moore, Memphis, Tenn.—p. 581.

*Immediate Effects of Various Pyelographic Mediums on Mucosa: Experimental Study. E. G. Mark and E. T. Johnson, Kansas City, Mo.—p. 595.

Surgery of Hypospadias and Epispadias in Male.—Cecil believes that in attempting to reconstruct deformities of the urethra the urologic surgeon should familiarize himself thoroughly with the principles of plastic surgery. No result can be obtained without an absolute diversion of the urinary stream, and this is not likely to be brought about except by occlusion of the urethra by suture. No drainage tubes, probes or any other foreign bodies should be left in the newly formed urethra. The primary operation for the correction of the deformity of the penis should be done during the first two years of life. It should be complete and no other operation should be done until the deformity is proved to have been cured. Heteroplastic grafts are of no value for the reconstruction of the urethra. There is much experimental and clinical evidence against the use of isoplastic grafts and it is doubtful whether one should attempt to reconstruct a urethra from them. Autoplastic free grafts, such as the use of the appendix or the use of veins, arteries or free skin grafts after the method of Nové-Josserand, are unsatisfactory in reconstructing the urethra, and although urethral canals have been made by the use of this material the results have almost universally been bad. The advancement of the urethra operation of Beck is of use only in minor degrees of hypospadias, in patients who probably should not be operated on at all. In more extreme degrees of hypospadias it is likely to result in failure or in the production of a condition worse than previous to the operation. The Cantas operation of using a pedicle graft of the saphenous vein has not been sufficiently tried to warrant its use. Among other objections to it is that the vein is likely to be too small or is likely to be branched. Small base pedicle grafts, such as are exemplified by the Rochet method, are likely to leave fistula at the base of the pedicle graft. They have a tendency not to join in the development of the penis and to cause retraction of the penis and in some instances contraction of the caliber of the tube. The most successful method of reconstructing the urethra is by the method of Thiersch, which is applicable to all forms of hypospadias. Many cases of epispadias with incontinence are curable. Transplantation of the ureters to the intestine should be reserved for those cases in which one has utterly failed to reconstruct the vesical neck. The best method of reconstructing the bladder neck and urethra is the method proposed by Young.

Primary Epithelioma of Urethra.—According to Kirwin, stricture and chronic urethritis seem to have etiologic significance in the production of primary epithelioma of the urethra. About the only prominent symptom is obstruction of the urinary system or, at times, complete retention. These are common to so many other pathologic conditions arising in the urinary tract as to be of small diagnostic value. Biopsy is the only sure means of differentiation. If this is done early and immediate treatment instituted, the chances of relief are fairly good. Far advanced cases benefit but little from any kind of treatment. The author reports a case in which the original lesion close to the urinary meatus was excised with the bipolar cautery, the metastatic inguinal lymph nodes were removed, and the inguinal wounds treated, first by radon implantation and later by alpine light and high voltage roentgen irradiation. Examination after four months showed slight recurrence, but this was readily controlled by further cauterization. The patient remains in good condition. Complete roentgen examination of the skull, lungs, bones and internal organs was negative for metastasis.

Congenital Solitary Hydronephrotic Infected Kidney.—Moore points out that although unilateral renal agenesia occurs infrequently, it must be considered as a routine in any case in which nephrectomy is contemplated. Invariably, the status of the opposite kidney should be determined before operation. In the conservative treatment of hydronephrosis, many methods have been devised for the purpose of correcting obstructive conditions in the vicinity of the ureteropelvic juncture. The merits of these various procedures must be considered in their application to the individual case at the time of the operation. The factor of renal counterbalance is important in unilateral hydronephrosis; animal experimentation has not revealed positive proof as to whether or not disuse atrophy of the diseased kidney occurs after the other organ has undergone compensatory hypertrophy. The author reports details of a case in which a large infected hydronephrosis caused by a valvular type of obstruction existed, with congenital absence of the opposite kidney. The method of relieving the obstruction is described and the functional and urographic end-results are submitted.

Effects of Pyelographic Mediums on Mucosa.—Because of the constant injury to the bladder mucosa resulting from the use of 25 per cent sodium bromide even when no undue pressure or overdistention is present, and its marked hemolytic action, Mark and Johnson feel that it is not only unsuitable but dangerous as a urographic medium. Sodium iodide in 12.5 per cent solution, though causing a much less degree of hemolysis than sodium bromide, nevertheless produces quite a

In the case of the special cereal this supplied 27.2 mg. of iron daily, while the ordinary cereals supplied only 1.2 mg. daily. The children on the special cereal made an average gain of 1.2 Gm. of hemoglobin per hundred cubic centimeters of blood, while those on the ordinary cereal made no gain at all.

Blindness from Methyl Alcohol Treated by Lumbar Puncture.—Mathewson and Alexander report a case of methyl alcohol poisoning in which the blindness was successfully treated by lumbar puncture. From a consideration of all the facts they advise that in this condition the following treatment be instituted as soon as possible: (1) repeated gastric lavage during the first four or five days to remove the alcohol excreted by the gastric glands, (2) a large fluid intake to dilute the poisons circulating in the blood stream, (3) pilocarpine sweats and hot packs daily to aid elimination through the skin and (4) and most important, the withdrawal of as large an amount of cerebrospinal fluid as possible daily for four or five days. The pressure should not be allowed to fall below 100 mm. of water, to dilute and mitigate the attack of the poisons on the central nervous system especially the eye. This treatment of course, is to be used whether the eyesight is damaged or not.

Journal of Bacteriology, Baltimore

23: 355-433 (May) 1932

Selection of Dilution Water for Bacteriologic Examination. C. T. Butterfield, Cincinnati.—p. 355.
Oxidation-Reduction Potentials in Relation to Growth of Aerobic Form of Bacteria. W. P. Allyn and I. L. Baldwin, Madison, Wis.—p. 369.
Anomalous Behavior of Tubercle Bacillus as Gram-Positive Organism with High Resistance to Gentian Violet. Esther Wagner Stearn and A. E. Stearn, Columbia, Mo.—p. 399.
Decomposition of Proteins by Micro-Organisms, with Particular Reference to Purified Vegetable Proteins. S. A. Waksman and R. L. Starkey, New Brunswick, N. J.—p. 405.

Journal of Experimental Medicine, New York

55: 829-999 (June) 1932

Comparison of Reducing Power of Some Typical Transplantable Tumors and Tumors Produced by Filtrable Viruses with Appendix on Metabolism of Infectious Myxoma of Rabbit. E. S. G. Barron, Chicago.—p. 829.
Antipneumococcic Immunity Reactions in Individuals of Different Ages. W. D. Sutliff and M. Finland, Boston.—p. 837.
*Specific Antibody Response of Human Subjects to Intracutaneous Injection of Pneumococcus Products. M. Finland and W. D. Sutliff, Boston.—p. 853.
Reactions of Rabbits to Intracutaneous Injections of Pneumococci and Their Products. VIII. Interrelationships of Hypersensitiveness to Pneumococcus and Streptococcus. L. A. Julianelle and M. C. Morris, St. Louis.—p. 867.
Antipneumococcus Properties of Normal Swine Serum. W. H. Kelley, New York.—p. 877.
*Spontaneous and Acquired Active Immunity to Phenomenon of Local Skin Reactivity to Bacterial Filtrates. G. Shwartzman, New York.—p. 889.
Relation of Heart Weight to Basal Metabolism as Varied by Thyroid Administration. L. M. Smith and E. M. Mackay, La Jolla, Calif.—p. 903.
Virus Disease of Parrots and Parrakeets Differing from Psittacosis. T. M. Rivers and F. F. Schwentker, New York.—p. 911.
Therapeutic Value of Intramuscular Dosage of Type I Pneumococcus Antiserums. T. J. Curphey and H. B. Baruch, New York.—p. 925.
*Vaccination Against Yellow Fever with Immune Serum and Virus Fixed for Mice. W. A. Sawyer, S. F. Kitchen and W. Lloyd, New York.—p. 945.
Anemia of Scurvy: Effect of Vitamin C Diet on Blood Formation in Experimental Scurvy of Guinea-Pigs. S. R. Mettier and W. B. Chew, San Francisco.—p. 971.

Antibody Response to Pneumococcus Products.—The blood of sixty-three human subjects selected because of the absence of recent infection was studied by Finland and Sutliff for its content of specific antibodies against virulent strains of types I, II and III pneumococci before and after intracutaneous injections of minute amounts of pneumococcus products. The simultaneous injection of the specific polysaccharides of all three types of pneumococci and of proteins and autolysates derived from types I and II pneumococci was followed by the appearance or increase of pneumococcidal power in the whole defibrinated blood and, in most instances, by the appearance of mouse protective antibodies and agglutinins for one or more types. A single intracutaneous injection of 0.01 mg. of the protein-free type-specific polysaccharide of either type I, type II or type III pneumococci or four similar daily injections was followed, in most of twenty-nine subjects, by the appearance of antibodies against the homologous but not against the heterologous type pneumococci. Some subjects showed a simultaneous lowering of a preexisting pneumococcidal power for heterologous or homologous types. A single intracutaneous injection of 0.1 mg. of pneumococcus protein in thirteen individuals was not followed by the appearance of specific antibodies to any appreciable degree. Single intracutaneous injections of small amounts of autolysates derived from virulent strains of type I, II or III pneumococci were followed in eleven subjects by a more or less general rise in the pneumococcidal power with the appearance of homologous type agglutinins and protective antibodies in about one third of the subjects.

Immunity to Phenomenon of Local Skin Reactivity to Bacterial Filtrates.—Shwartzman describes experiments in which he demonstrated spontaneous active immunity to the phenomenon of local skin reactivity to bacterial filtrates. In one experiment the immunity was nonspecific, while in others it appeared limited to one or two bacterial species. Intradermal vaccination of rabbits with bacterial filtrates induced active immunity to the phenomenon. The specificity of this immunity was tested with graded amounts of toxic factors. The combined intradermal and intravenous immunization in these experiments elicited two types of response, namely, (1) specific immunity, which was obtained in rabbits highly susceptible to the phenomenon (i. e., showing reactions with 1 reacting unit) and (2) nonspecific immunity, which was elicited in rabbits with partial spontaneous immunity (i. e., showing no reactions with 1 reacting unit but susceptible to 15 units one week later). Comparative studies on the reacting potency of "agar washings" and disintegrates (Besredka's method, freezing and thawing method) showed that the first washings of bacterial cells are considerably stronger than subsequent washings and disintegrates. These facts demonstrate once again the extracellular nature of the material necessary for the phenomenon.

Yellow Fever Vaccination.—After preliminary experiments in monkeys, Sawyer and his associates immunized fifteen persons by a single injection of a dried mixture of living yellow fever virus fixed for mice, and human immune serum with separate injections of enough additional serum to make up the amount required for protection. One person was similarly immunized by injecting immune serum and dried virus separately. By titration of the serums of vaccinated persons in mice, it was shown that the immunity rose in a few weeks to a height comparable to that reached after an attack of yellow fever and remained there throughout an observation period of six months. Yellow fever virus could not be recovered from the blood of vaccinated persons or monkeys, except when the latter had received less than the minimal effective amount of immune serum. Neutralization of yellow fever virus by immune serum took place very slowly in vitro at room temperature in the authors' experiments, and could not have been an appreciable factor in vaccination with the serum virus mixtures. A mixture of fixed virus and immune serum retained its immunizing power for eight months when dried in the frozen state and sealed in glass. It appears that the immunizing reaction after yellow fever vaccination was a part of a true infectious process, as was also the observed leukopenia.

Journal of Preventive Medicine, Chicago

6: 115-218 (May) 1932

*Statistical Analysis of Outbreak of Acute Anterior Poliomyelitis in San Francisco in 1930. J. C. Geiger and J. P. Gray, San Francisco.—p. 115.
Susceptibility of Rats to Infection with Horse Trypanosome, Trypanosoma Hippicum Darling, in Panama. L. H. Dunn, Panama, Republic of Panama.—p. 155.
State-Wide Study of Human Intestinal Helminths in Tennessee. A. E. Keller, W. S. Leathers and E. L. Bishop, Nashville, Tenn.—p. 161.
American Administrative Practice in the Control of Scarlet Fever. G. B. Darling and J. E. Gordon, Detroit.—p. 185.
Immunity to Superinfection and Cross-Immunity in Malarial Infections of Birds. W. Gingrich, Chicago.—p. 197.

Poliomyelitis in San Francisco in 1930.—Geiger and Gray call attention to the fact that the outbreak of poliomyelitis in San Francisco and in California as a whole during 1930 was the most extensive yet recorded for these districts. The incidence for San Francisco began to be above the average in June 1930 and continued in epidemic proportions through the following March, 215 local and 50 nonlocal cases and 32 deaths were recorded during this period. No part of the city was free from the disease, and the prevalence was directly proportional to the density of population. More than 75 per cent of the patients were hospitalized. Males were affected more frequently than females (ratio, 3:2); deaths were evenly divided between the sexes. While a preponderance of the cases occurred in the younger age groups, there were not a few in the older groups, even into the fifth and sixth decades. The fatality rate was higher among adults than in the lower age groups. An attempt was made to determine the types of onset and the symptoms and signs predominant in the early stages of the disease. In the cases that could be classified definitely, the gastro-intestinal type of onset was most frequent, with vomiting or constipation or both as the most prominent signs in the clinical picture. Diarrhea was uncommon. An analysis of the signs tabulated in the central nervous system type of onset would be unsatisfactory because of the lack of definition of the degree of severity and the added factor of varied interpretation by different observers. It may be stated, however, that retraction of the head, indicating meningeal irritation in most instances, occurred with some frequency. Headache, a valuable symptom under certain circumstances, is also difficult of analysis because of the personal equation, but it should be pointed out that, while headache of moderate type was most frequent in the case histories, the severe type was not rare. Fever was present in all but a few cases; the moderate range predominated, although there were numerous instances of relatively high temperatures. Attention has often been directed to the various types and degrees of pain in the early stages of poliomyelitis, causing frequent errors in diagnosis. Pain is usually present, varying from generalized pain comparable to what is seen in true influenza to pain localized in a single muscle group. Pain in the extremities generally preceded paralysis of the part involved and hence is a sign of value in prognosis. The most frequent locations of pain were the neck and back regions, with leg pains and generalized pain next in frequency. A definite interval between the onset of the disease and the onset of paralysis occurred in 154 of the local cases, this interval lying between two and five days in 116 instances (70 per cent). In the nonlocal series the same relative proportion obtains. In the paralytic cases, the many parts and the many combinations of parts paralyzed make detailed classification difficult. Involvement of the extremities, either singly or in combination, was most frequent, occurring in all but twenty-five of the paralyzed cases among the local group and in all but five of the corresponding cases in the other group. The use of convalescent serum appears to have been judicious. Of 167 local patients receiving serum, 109 (65 per cent) were treated on or before the third day, and 140 (83 per cent) on or before the fifth day. It is generally accepted that the serum, to be of benefit, must be administered before the onset of paralysis. Of the 167 local serum-treated patients, 90 (53 per cent) showed definite or apparent improvement, while 30 (18 per cent) showed no improvement. The same relative proportion obtained for a nonlocal group.

Journal of Urology, Baltimore

27: 507-606 (May) 1932

*Surgery of Hypospadias and Epispadias in Male. A. B. Cecil, Los Angeles.—p. 507.
*Primary Epithelioma of Urethra. T. J. Kirwin, New York.—p. 539.
Solitary Papilloma of Lower Ureter (Right) Secondary to Recurrent Papillomas of Bladder. H. A. Fowler, Washington, D. C.—p. 561.
*Congenital Solitary Hydronephrotic Infected Kidney; Pyelo-Ureteroplasty. T. D. Moore, Memphis, Tenn.—p. 581.
*Immediate Effects of Various Pyelographic Mediums on Mucosa: Experimental Study. E. G. Mark and E. T. Johnson, Kansas City, Mo.—p. 595.

Surgery of Hypospadias and Epispadias in Male.—Cecil believes that in attempting to reconstruct deformities of the urethra the urologic surgeon should familiarize himself thoroughly with the principles of plastic surgery. No result can be obtained without an absolute diversion of the urinary stream, and this is not likely to be brought about except by occlusion of the urethra by suture. No drainage tubes, probes or any other foreign bodies should be left in the newly formed urethra. The primary operation for the correction of the deformity of the penis should be done during the first two years of life. It should be complete and no other operation should be done until the deformity is proved to have been cured. Heteroplastic grafts are of no value for the reconstruction of the urethra. There is much experimental and clinical evidence against the use of isoplastic grafts and it is doubtful whether one should attempt to reconstruct a urethra from them. Autoplastic free grafts, such as the use of the appendix or the use of veins, arteries or free skin grafts after the method of Nové-Josserand, are unsatisfactory in reconstructing the urethra, and although urethral canals have been made by the use of this material the results have almost universally been bad. The advancement of the urethra operation of Beck is of use only in minor degrees of hypospadias, in patients who probably should not be operated on at all. In more extreme degrees of hypospadias it is likely to result in failure or in the production of a condition worse than previous to the operation. The Cantas operation of using a pedicle graft of the saphenous vein has not been sufficiently tried to warrant its use. Among other objections to it is that the vein is likely to be too small or is likely to be branched. Small base pedicle grafts, such as are exemplified by the Rochet method, are likely to leave fistula at the base of the pedicle graft. They have a tendency not to join in the development of the penis and to cause retraction of the penis and in some instances contraction of the caliber of the tube. The most successful method of reconstructing the urethra is by the method of Thiersch, which is applicable to all forms of hypospadias. Many cases of epispadias with incontinence are curable. Transplantation of the ureters to the intestine should be reserved for those cases in which one has utterly failed to reconstruct the vesical neck. The best method of reconstructing the bladder neck and urethra is the method proposed by Young.

Primary Epithelioma of Urethra.—According to Kirwin, stricture and chronic urethritis seem to have etiologic significance in the production of primary epithelioma of the urethra. About the only prominent symptom is obstruction of the urinary system or, at times, complete retention. These are common to so many other pathologic conditions arising in the urinary tract as to be of small diagnostic value. Biopsy is the only sure means of differentiation. If this is done early and immediate treatment instituted, the chances of relief are fairly good. Far advanced cases benefit but little from any kind of treatment. The author reports a case in which the original lesion close to the urinary meatus was excised with the bipolar cautery, the metastatic inguinal lymph nodes were removed, and the inguinal wounds treated, first by radon implantation and later by alpine light and high voltage roentgen irradiation. Examination after four months showed slight recurrence, but this was readily controlled by further cauterization. The patient remains in good condition. Complete roentgen examination of the skull, lungs, bones and internal organs was negative for metastasis.

Congenital Solitary Hydronephrotic Infected Kidney.—Moore points out that although unilateral renal agenesia occurs infrequently, it must be considered as a routine in any case in which nephrectomy is contemplated. Invariably, the status of the opposite kidney should be determined before operation. In the conservative treatment of hydronephrosis, many methods have been devised for the purpose of correcting obstructive conditions in the vicinity of the ureteropelvic juncture. The merits of these various procedures must be considered in their application to the individual case at the time of the operation. The factor of renal counterbalance is important in unilateral hydronephrosis; animal experimentation has not revealed positive proof as to whether or not disuse atrophy of the diseased kidney occurs after the other organ has undergone compensatory hypertrophy. The author reports details of a case in which a large infected hydronephrosis caused by a valvular type of obstruction existed, with congenital absence of the opposite kidney. The method of relieving the obstruction is described and the functional and urographic end-results are submitted.

Effects of Pyelographic Mediums on Mucosa.—Because of the constant injury to the bladder mucosa resulting from the use of 25 per cent sodium bromide even when no undue pressure or overdistention is present, and its marked hemolytic action, Mark and Johnson feel that it is not only unsuitable but dangerous as a urographic medium. Sodium iodide in 12.5 per cent solution, though causing a much less degree of hemolysis than sodium bromide, nevertheless produces quite a recognizable edema of the mucosa and irritation. Iopax in 30 per cent solution causes approximately the same degree of hemolysis as 12.5 per cent sodium iodide, though its use is unaccompanied by any mucosal or submucosal change, and no evidence of irritation is found. Methiodal in 20 per cent (or normal) solution does not cause hemolysis and is totally free of any irritating qualities. Using either iopax or methiodal, one need no longer have any fear of bilateral pyelograms which are essential in the larger number of cases requiring roentgenographic renal and ureteral study. It becomes quite evident from these experiments that, while there can be no question that overdistention is productive of damage and pain, even in the use of mild solutions, the real factor in causing irritation and mucosal damage lies in the character of the drug itself and its immediate effects on the mucosa

Kentucky Medical Journal, Bowling Green

30: 303-360 (June) 1932

Pathology and Physiology of Chronic Cholecystitis as Basis for Diagnosis and Treatment G Y Graves, Bowling Green —p 308
Heart Conditions H W. Gingles, Hardburly —p 314
Present Status of Agranulocytosis M Flexner, Louisville —p 318
Tularemia J M Blades, Butler —p 323
Present Status of Hemolysis in Blood Transfusion Report of Fatal Case C Baron, Covington —p 326
Bronchopneumonia W H Joyner, Greenup —p 329
Review of the University of Kentucky Bulletin Studies in Medical Service R W Connor, Owensboro —p 332
Unusual Urinary Obstruction Case Report S C McCoy, Louisville —p 337
Some Professional Problems A Bell, Hopkinsville —p 338
Calcification in Pulmonary Tuberculosis O O Miller, Louisville —p 344
Diagnosis of Duodenal Ulcer W T Dowdall, Paducah —p 348
Prophylaxis and Treatment of Chronic Nephritis Latta Graves, Scottsville —p 350
Shall We Continue to Perpetuate Feeblemindedness? H C Clark, Falmouth —p 354
Management of Carcinoma of Breast C D Enfield, Louisville —p 356

Minnesota Medicine, St. Paul

15: 379 454 (June) 1932

Public Health Organization and the Medical Profession A J McLaughlin, Chicago —p 379
The Inevitable End of Public Health Work W G Richards, Billings, Mont —p 382
Periodic Health Examination Discussion M C Piper, Rochester —p 388
Economic Therapeutics A H Parks, Minneapolis —p 390
Treatment of Club Feet (Talipes Equino Varus) in Infants C C. Chatterton, St Paul —p 396
Study of Incidence of Auricular Fibrillation H L Smith, Rochester. —p 403
Angina Pectoris History, Etiology and Mechanism F A Willius, Rochester —p 406
Treatment of Asthmatic Bronchitis with Iodized Oil J H Taylor, Minneapolis —p 408
Treatment of Chronic Morphine Intoxication W P Gardner, St Paul —p 410
Present Status of Indications for Renal Sympathectomy W P Herbst, Minneapolis —p 413
Democedes. D C Collins, Rochester —p 416
Leukorrhea Two Common Causes E C Hartley, St Paul —p 423

Nebraska State Medical Journal, Lincoln

17: 221-268 (June) 1932

Present Trends in Medicine A E. Cook, Randolph —p 221
*Analysis of Results in Four Hundred and Eleven Consecutive Cases of Perineal Prostatectomy E Davis, Omaha —p 224
Spinal Anesthesia Part II C H. Arnold, Lincoln —p 230
Reconstruction Procedures in Traumatic Lesions of Bone and Joint Where Conservative Methods Fail H F Johnson, Omaha —p 234
Artificial and Pseudovoice Following Complete Laryngectomy P. L Romonek, Omaha —p 238
Nebraska Hospitals and Their Relation to the Practitioner. F. J. Bean, Omaha —p 243

Analysis of Results of Perineal Prostatectomy.—Davis reports that there were nine deaths in a consecutive series of 411 cases of perineal prostatectomy under sacral block anesthesia (2.17 per cent). He states that the chief factors contributing toward maintaining a low mortality rate in prostatectomy are (1) adequate preliminary drainage, (2) the perineal route, (3) detailed attention to hemostasis, and (4) sacral block anesthesia. The chief uncontrolled and unavoidable hazard of prostatectomy today is massive delayed hemorrhage, coming on as late as the end of the second week and occurring in 2 per cent of cases. As determined by questionnaire blanks sent out after intervals of several months following prostatectomy, 82 per cent of these patients voluntarily classified themselves as well, 16 per cent improved, and 2 per cent unimproved. By far the chief reason why these patients tend to classify themselves as improved rather than well is in the persistence of varying degrees of urinary frequency, due to deep-seated and irremediable urinary tract infection. With respect to the matter of selection of cases, out of a total of 200 consecutive patients presenting themselves with varying degrees of prostatic obstruction, 118 were submitted to prostatectomy, 6 were sent home with suprapubic drainage tubes, with the decision pending as to the advisability of prostatectomy, while in 3 instances the patient's condition was considered such as definitely to contraindicate any consideration of prostatectomy. The author believes that the technic of sacral block anesthesia (for prostatectomy) may be made sufficiently exact so that the percentage of failure, formerly considered inevitable, may be entirely eliminated. In a series as yet uninterrupted, he has employed sacral block anesthesia for perineal prostatectomy in 262 consecutive cases without a single anesthesia failure.

New England Journal of Medicine, Boston

206: 1125-1160 (June 2) 1932

Cancer of Colon F. H. Lahey and Sara M. Jordan, Boston —p. 1125
Some Outstanding Facts from Studies of Committee on Costs of Medical Care R M Smith, Boston —p. 1132.
Anatomic Basis for Study of Splanchnoptosis: Ptosis en Masse and Its Relation to Body Form: Preliminary Communication. Agnes C Victor, Boston —p 1137.

Cancer of Colon.—Lahey and Jordan believe that the early diagnosis of carcinoma of the colon must be concluded on roentgen evidence by opaque and air enemas. Any patient with any alteration in colonic function should be investigated by the opaque enema with a question of a colonic new growth. The symptoms of carcinoma of the proximal colon are vague and usually not associated with the signs of obstruction Patients with severe anemia should be investigated for the question of carcinoma of the cecum and ascending colon because of the association of anemia with this lesion. The symptoms of carcinoma of the distal colon are largely those of obstruction and are without severe secondary anemia. Patients with hemorrhoids should be carefully investigated as to the possibility that the underlying cause of the hemorrhoids is an early carcinoma of the rectum. One of the soundest principles of the surgical treatment of carcinomas of the colon is that preliminary enterostomy proximal to the lesion must be employed in all patients with obstruction. Resection of the colon by the Mikulicz plan is applicable to all segments of the colon except the transverse colon, where it can be done but is less satisfactory than at other levels. It is the safest method of removing segments of the colon. The authors describe a method of staggering the implanted loops of bowel on the abdominal wall. By this technic the Mikulicz plan of resection can be applied even to patients with moderate degrees of obstruction, since immediate decompression of the proximal loop can be accomplished as an additional measure.

New York State Journal of Medicine, New York

32: 643-705 (June 1) 1932

Social and Economic Problems Facing the Medical Profession. N. B van Etten, New York —p 643.
*Study in Familial Achylia Gastrica, with Collateral Observations on Its Relations to Gastric Cancer and Pernicious Anemia M. Golob, New York —p 647.
Management of the Office Diabetic J R. Scott, New York —p 652
Subacute Bacterial Endocarditis N. Strauss, New York —p 657.
*Diagnosis and Management of Hemophilia in Childhood I. N. Kugelmass, New York —p 660.
Practical Points on Microscopic Grading of Carcinoma. A. C. Broders, Rochester, Minn —p 667.
Report of Case of Bacteremia Caused by Micrococcus Catarrhalis Following Tonsillectomy and Acute Polyarthritis, with Recovery. S H. Curtis, Troy.—p 672.

Familial Achylia Gastrica.—Golob reports the results of a study of familial achylia in a group of two brothers, a sister, and a half-brother born of a different mother. Both the sister and the half-brother died of gastric cancer, the former at the age of 40 and the latter at 31. In both cases the stomach contents revealed all the stigmas of achylia. The other two brothers are living. It is interesting to note that there was another sister in the family who died of diabetes mellitus at 40, and yet another sister, still alive, having the same disease. The cases of achylia illustrate the practical application of preventive therapy; they undoubtedly suggest that cancer respects no age, and the physician relying on a "cancer age" indulges in a false sense of security. The search for the etiology of a true achylia often leads to the diagnosis of a grave malady. It serves both as a danger signal and as a path finder. Achylia is not merely a symptom of a disease but either an anatomic part of a disease complex or a precursor of an oncoming malady. The timely administration of hydrochloric acid may check bacterial activity and prevent the breakdown of the compensatory activities of the auxillary gastric mechanism. It is remarkably effective in gastrogenic diarrhea, pernicious anemia and combined spinal sclerosis, and it is the sine qua non in the therapy of benign achylia. Pernicious anemia must be both preceded and accompanied by achylia, which may be regarded as one of its etiologic factors, through its hemolytic toxin on the hematopoietic organs, and neurotoxin on spinal cord structures. Achylia is a potential forerunner of gastric cancer, laying a fertile soil for malignant implantation through irritation and lowered resistance. Complete anacidity and a short history are strongly indicative of carcinoma; if one adds to it the triad of anorexia, weight loss and progressive asthenia, the diagnosis is certain. Roentgen examination is made only to determine the extent of the region involved. On the other hand, a long history of digestive aberration with even a hyperacidity does not preclude a malignant condition, but if there is the same triad syndrome, a diagnosis of cancer should stand until eliminated. The symptoms of gastric cancer as detected by the conventional mechanical methods of examination are no longer symptoms but complications of the malady. Hence, awaiting the presence of these symptoms must give way to the detection of their approach. The harder it is to recognize gastric carcinoma, the better the prognosis.

Hemophilia in Childhood.—The criteria necessary and sufficient for the diagnosis of hemophilia are formulated by Kugelmass on the basis of experimental and clinical studies. Quantitative determinations of the constituents involved in blood coagulation show the hemophilic deficiency to be in the primary stage of the blood clotting mechanism. Hemophilic blood shows a strikingly low prothrombin content compensated by a correspondingly high antithrombin content. The platelets are normal in number but are physiologically defective, having a slow rate of disintegration. Hemophilic blood is characterized by a blood clotting index which is less than one tenth of the normal. The index constitutes the ratio of the concentration of the substances tending to clot over those tending to favor bleeding. Accordingly, the normal index of clotting function is 0.5 whereas the hemophilic clotting index is less than 0.05. The very low index of blood clotting function is absolutely diagnostic of hemophilia. The index of blood clotting function is increased many fold after transfusion, but the improved clotting lasts for only forty-eight hours. Transfusion does not alter the clotting function of blood in hemophilic persons with joint manifestations. Dietary protein, lipids, vitamins or minerals do not alter the deficient clotting function in hemophilia. Hemophilic persons show the absence of the female sex hormone in their tissues. Ovarian therapy, theelin, and so on produce no change in the hemophilic clotting mechanism. Serum injected and applied locally is not effective in controlling hemorrhage in hemophilia unless it is fresh and rich in thrombin. But nonhemophilic bleeders respond rapidly to any serum and to dietotherapy.

Ohio State Medical Journal, Columbus

28: 401-488 (June) 1932

Our Objective and Obligations: Observations on Medical Organization: Annual Address of Retiring President. D. C. Houser, Urbana.—p. 421.
The Doctor, the Organization and the Code: Inaugural Address of Incoming President. H. M. Platter, Columbus.—p. 427.
Brain Trauma: Mechanism from Pathologic Standpoint. N. W. Winkelman, Philadelphia.—p. 429.
Intra-Ocular Foreign Bodies. P. G. Moore, Cleveland.—p. 431.
Facts About the Injection Method of Treating Hemorrhoids. W. Teachnor, Sr., Columbus.—p. 437.

Public Health Reports, Washington, D. C.

47: 1147-1186 (May 20) 1932

Comparison of Trachoma Virulence in Different Sections of the United States. C. E. Rice, J. E. Smith and R. Sory.—p. 1149.

47: 1187-1238 (May 27) 1932

Prevalence of Venereal Disease in New Orleans, Louisiana. T. Clark and Lida J. Usilton.—p. 1187.
Value of Complete Routine Physical Examination of Prisoners. M. R. King.—p. 1197.

47: 1239-1284 (June 3) 1932

Action of Colloidal Paris Green on Larvae of Culex Apicalis: Preliminary Report. H. G. Grant, B. M. Newman and P. D. Wood.—p. 1239.

Radiology, St. Paul

18: 1051-1182 (June) 1932

*Preliminary Report on Continuous Irradiation of Entire Body. A. C. Heublein, Hartford, Conn.—p. 1051.
Cancer in the Young. M. J. Sittenfield, New York.—p. 1063.
Radiation Therapy of Cancer: Basic Principles, Their Application and Results. W. L. Mattick, Buffalo.—p. 1070.
Seven Thousand Angstrom Units Plus. R. C. Walker, Portland, Ore.—p. 1090.
*A Critic of Roentgen Signs of Infantile Scurvy: Report of Thirteen Cases. K. Kato, Chicago.—p. 1096.
The *Dolichocolon*. *F. D. LaRochelle* and E. E. Smith, Springfield, Mass.—p. 1111.
New Feature in Iodized Oils. F. R. Greenbaum, Chicago.—p. 1115.
Treatment of Mastoiditis with Roentgen Rays. W. L. Ross, Omaha.—p. 1124.
Records in Roentgen Therapy. C. L. Gillies, Cedar Rapids, Iowa.—p. 1131.

Continuous Irradiation of Entire Body.—Heublein presents theoretical considerations and practical observations which led him to the conclusion that it is desirable to test the value of prolonged continuous irradiation of the entire body in certain types of neoplastic diseases. At the Memorial Hospital in Hartford, an automatic roentgen-ray machine is in use in a special lead-lined ward in which four patients may be simultaneously and continuously irradiated. In addition, provision has been made for the administration to other patients of local intermittent treatments at a target-skin distance of 150 cm., making use of the same roentgen-ray tube. This machine is dependable and economical in operation. The cases selected for the long distance irradiation method were well advanced, and many presented widely disseminated lesions. This choice was made primarily to establish a tolerance dose for the entire body and in the hope of observing some beneficial clinical manifestation, such as a stimulation of some defense mechanism against malignant disease. The maximum dose which the entire body will tolerate has not yet been established. However, investigations to determine this dose are being carried on. At present, the author believes that 25 per cent of a full erythema dose of 750 r measured in air, delivered at the rate of 1.26 r per hour, is a safe dose. Clinical observations and extensive special laboratory tests confirm this opinion. To date, no pronounced beneficial clinical manifestations have become evident, although in some instances encouraging improvement has been noted. It is too early to say whether or not a favorable systemic effect has been, or can be, produced by this method. With intermittent local treatment at 150 cm., definite regressions have been noted in the radiosensitive group of cases. The number of cases in both groups is too small to permit any definite conclusions at this time, although it is believed that the evidence accumulated thus far fully warrants the continuation of the experiment with increasing dosage, within safe limits.

Roentgen Signs of Infantile Scurvy.—Kato believes that the majority of the roentgen signs of infantile scurvy are not pathognomonic. The continued use of such terms as the "Trümmerfeldzone" and "Wimberger's sign" as diagnostic of infantile scurvy leads to confusion. Pelkan's trial in the diagnosis of latent scurvy is a valuable adjunct, but it is not absolutely characteristic. Beading of the ribs is common to infantile scurvy and to rickets. Separation of epiphyses is most frequently found in infantile scurvy, but it may also be found in other conditions. The white line of Fraenkel is the least characteristic of scurvy, for it is merely a phenomenon of hypercalcification at the end of a long bone, which is seen in many diverse pathologic conditions. The one sign which is absolutely unique in infantile scurvy is that of subperiosteal hemorrhage during the third stage of the disease. This can be only inferred clinically on examination of the limbs in the light of a suggestive history, but the final diagnosis must rest on roentgen examination. The author's conclusion is not to be interpreted to mean an attempt to minimize the diagnostic value of roentgenology but rather to emphasize the necessity of broadening the experience of clinicians and roentgenologists in proper evaluation and interpretation of the roentgen signs of infantile scurvy.

Surgery, Gynecology and Obstetrics, Chicago

51: 861-991 (June) 1932

- *Chorio-Epithelioma of Uterus. A. H. Curtis, Chicago.—p. 861.
- Is There a Closed Lymphatic System Connecting the Thyroid and Thymus Glands? K. S. Chouke, R. W. Whitehead and Alice E. Parker, Denver.—p. 865.
- *The Healing of Wounds: Experimental Study to Show Influence of Body Dehydration. C. E. Bird, Louisville, Ky., and E. M. MacKay, La Jolla, Calif.—p. 872.
- *Spinal Anesthesia. Summary of Clinical and Experimental Investigations, with Practical Deductions. J. O. Bower, J. H. Clark, G. Wagoner and J. C. Burns, Philadelphia.—p. 882.
- *Postoperative Thrombosis, Thrombophlebitis and Embolism. F. W. Bancroft and Margaret Stanley-Brown, New York.—p. 898.
- Time of Permeation of Colored Solutions Through Placenta of White Rat. C. M. Bourek, New Haven, Conn., and A. D. Renton, Pittsburgh.—p. 906.
- Cheiloplasty for Advanced Carcinoma of Lip. H. E. Martin, New York.—p. 914.
- Resection of Right Colon and Anastomosis of Ileum to Transverse Colon After the Plan of Mikulicz. F. H. Lahey, Boston.—p. 921.
- Interstitial Pregnancy. J. E. Ash, Washingtn, D. C.—p. 930.
- *Syndromes of Gastro-Ileostomy and Gastro-Ileac Ulcer. A. B. Rivers and D. L. Wilbur, Rochester, Minn.—p. 937.
- *Treatment of Forme Fruste Type of Perforated Peptic Ulcer. H. A. Singer and R. T. Vaughan, Chicago.—p. 945.
- *Transplantation of Tendons with Stabilization of Paralytic Talipes. G. A. Williamson, St. Paul.—p. 953.
- Operation for Direct Inguinal Hernia. E. H. Hutchins, Baltimore.—p. 964.

Chorio-Epithelioma of Uterus.—Curtis believes that the incidence of chorio-epithelioma of the uterus has been overestimated. Not only is the disease rare but its presence has often escaped clinical diagnosis, so that cases have usually been available for study only after recognition in the pathologic laboratory. A brief report submitted by the author presents a case with a perfect history of chorio-epithelioma in which clinical observation was followed by necropsy and complete pathologic study immediately after death. Incident of this study, colored illustrations were made within the hours immediately following the necropsy, before postmortem discoloration had developed, in order to portray, in lifelike colors, the appearance of the uterine tumors and the visceral metastases. A feature of especial interest was the presence of an easily elicited positive Hegar's sign, which was not only evident during life but was confirmed at necropsy, before the removal of the uterus from the opened abdomen. The fact that Hegar's sign persisted in the presence of living chorionic cells, despite prolonged absence of the fetus, is worthy of note. The appearance of clinical evidence of chorio-epithelioma more than a year and a half after birth of an hydatid mole is also worthy of note. It has been generally assumed that evidence of malignancy may be depended on to appear at a much earlier date. After passage of a typical mole the patient should evidently be kept under close observation for an indefinite period of time.

The Healing of Wounds.—Bird and MacKay describe experiments which show that moderate dehydration in rats, comparable to states of dehydration observed clinically, result in striking weakness in gastric wounds and in the gastric walls elsewhere than at the wounds. These effects are marked up to at least fourteen days after operation, the limit of time to which the experiments were carried. It is suggested that dehydration has a marked inhibitory effect on the processes of repair in general and that even after as short a period as four days there is sufficient destruction of body protoplasm to weaken considerably many tissues, whether or not they have been operated on. Such experimental results demand a continued and reiterated emphasis on the value of an adequate supply of fluid for injured patients of all types. It is, of course, important to bear in mind that dehydration can neither be prevented nor cured by water alone. Sodium chloride must be applied in addition.

Spinal Anesthesia.—On the basis of experimental work on dogs, Bower and his associates conclude that the fall in blood pressure following the injection of an anesthetic into the subarachnoid space is not due to a collection of blood in the splanchnic area. When the anesthetic ascends to the fourth thoracic nerve roots or higher in the dog there is an associated dilatation of the heart. The marked fall in blood pressure is mainly cardiac. Paralysis of the intercostal and phrenic nerves interferes with normal chest expansion and diaphragmatic excursion, causing a damming back of venous blood in the right heart and its tributaries. When the ascent of the anesthetic in the spinal canal is gradual, the blood pressure drops gradually and reaches its minimum in from fifteen to twenty minutes. When the anesthetic ascends rapidly and sufficiently high to affect not only the nerves of respiration but also the respiratory and vasomotor centers, the fall in arterial pressure is almost immediate but may be preceded by an asphyxial rise. Sudden deaths following intraspinal injections may be cardiac, cardiac and respiratory, or respiratory. Epinephrine and ephedrine did not prevent cardiac dilatation in the authors' experiments. The Drinker respirator alone will resuscitate an animal that has received the full adult dose of a spinal anesthetic into the cisterna. Up to the present time there is no known method of absolutely preventing deaths from spinal anesthesia, but artificial respiration offers the best means for combating respiratory embarrassment and the fall in arterial pressure.

Postoperative Thrombosis, Thrombophlebitis and Embolism.—Bancroft and Stanley-Brown believe that loose abdominal dressings, early postoperative feeding, and administration of fluid relieve postoperative distention and distress and may diminish thrombosis. Blood studies show that certain individuals are more prone to develop thrombosis than others. The blood abnormalities can frequently be improved by diet and intravenous medication. There are probably substances liberated in the blood through the effects of operative and postoperative trauma and infection that tend to change normal into abnormal clotting factors. The elimination of operative and postoperative trauma should diminish this incidence. Routine blood studies frequently show alterations in the clotting factors before the onset of thrombosis and thrombophlebitis. It is the authors' belief that in a number of cases thrombosis and embolism may be aborted by administering a diet low in fats and proteins and the intravenous administration of sodium thiosulphate.

Syndromes of Gastro-Ileostomy and Gastro-Ileac Ulcer.—Rivers and Wilbur call attention to the fact that the general characteristics of secondary peptic lesions which occasionally occur about a gastrojejunal stoma can be reduplicated even to certain minute histopathologic characteristics by similar lesions which may develop subsequent to the formation of anastomosis between the stomach or the jejunum and the lower part of the ileum. Clinical evidence is suggestive that the potentiality for the development of peptic lesions arises whenever and wherever any segment of intestinal mucosa is exposed to the eroding action of the gastric chyme. It would appear that a syndrome fairly characteristic for gastro-ileostomy can be formulated. If, following an operation performed for a gastric lesion, particularly if there is some evidence that a side-tracking operation had been attempted, the patient begins to lose weight, to have lienteric diarrhea, fecal vomiting, and fecal belching, and to lose weight rapidly despite normal appetite and normal ingestion of food, the suspicion should arise that an anastomosis has been made erroneously between the stomach and the ileum or colon. Similar symptoms may be produced by anastomosis between the jejunum and the ileum or colon. If, following a period during which such symptoms have developed, pain is superimposed, and if this pain is situated lower than the original pain and arises from thirty minutes to several hours after meals, if it is referred downward or through to the back and is to any degree amenable to the ingestion of food or to the taking of an alkali, the presence of a gastro-ileac ulcer may well be suspected. The surgical formation of gastro-ileostomy in itself may not be productive of definite symptoms, because in certain cases the pylorus remains patent and maintains its physiologic function so that most of the food reaches the duodenum and the small intestine in the normal fashion, thus preventing emaciation, dehydration, and lienteric stools. The more the gastric contents leave the organ through the stoma, the more definite the syndrome of gastro-ileostomy will become.

Treatment of Forme Fruste Peptic Ulcer.—The plan of treatment used by Singer and Vaughan for forme fruste perforations in gastric ulcer is as follows: Practically all patients seen within the first twenty-four hours of onset are operated on, since in the early stage it is difficult or impossible to determine whether or not the rupture is firmly closed and leakage has ceased. When the patient is seen for the first time during the second twenty-four hours and it can be determined with a reasonable degree of certainty that the perforation is securely sealed and the peritonitis is limited and receding, the authors are inclined to refrain from surgical intervention. If there is any doubt as to the closure of the perforation, immediate operation is employed. If the patient is first seen after the second postoperative day, it is generally a simple matter to decide whether or not spontaneous closure with only insignificant leakage has occurred. A peritonitis which is still diffuse and active at this time indicates that the perforation is not the forme fruste type. In the nonsurgical treatment of the late forme fruste ruptures, the stomach when distended with fluid is aspirated by siphonage, the patient is required to lie continuously on the left side, and food and fluids by mouth are withheld for from three to four days or even longer. Fluids are furnished by proctoclysis and hypodermoclysis. The authors wish to sound a note of warning against the indiscriminate application of these principles of treatment. The recommendations submitted by them apply exclusively to forme fruste perforations. The presence of only slight or moderate improvement during the first twenty-four hours does not constitute proof of a forme fruste rupture or indicate that leakage has been completely checked. Unless the recovery from the peritonitis is almost complete, a forme fruste perforation cannot be assumed. If one cannot be reasonably certain of the type of perforation present, the patient is best treated according to accepted current teaching.

Transplantation of Tendons with Stabilization of Paralytic Talipes.—According to Williamson, final operative treament in infantile paralysis should not be undertaken until the residual stage at least two years after the onset of the disease has been reached. In untreated cases, deformities should be corrected and a period of conservative treatment by physical therapy and mechanical fixation instituted before any operative treatment is undertaken. Transplantation of tendons, although attractive from a theoretical standpoint, has not proved satisfactory in itself. As stability of the feet with freedom from painful lateral deformities is the most desirable end-result, an operation designed to fuse joints through which the deformities occur should be performed. Any lateral muscles having useful power must be transplanted into the achilles tendon or front of the foot as indicated. Children should be at least 6 years and preferably over 10 years of age before any bony operation is done. A brief consideration of the rules governing the transplantation of tendons is offered together with a brief description of subtalar arthrodesis. A change in the nomenclature of operative procedures to that taught at present in the medical schools is suggested. Six cases are briefly reported.

Tennessee State Medical Assn. Journal, Nashville

25: 165-305 (May) 1932

Will Future Policies of Organized Medicine be Aggressive or Submissive? T. R. Ray, Shelbyville.—p. 165.
*Problems in Treatment of Obstructive Lesions of Biliary Tract. W. Walters, Rochester, Minn.—p. 169.
Personality as Factor in Therapeutics. W. O. Brickell, Friendsville.—p. 175.
Congenital Malaria: Report of Cases. N. H. Bare, Batang, Hsikang, China.—p. 178.
Laryngeal Tuberculosis with Alcohol Blocking of Internal Laryngeal Nerve During Advanced Stage. D. H. Anthony, Memphis.—p. 182.
"The Doctor as a Witness." B. S. Rhea, Lebanon.—p. 188.

Treatment of Obstructive Lesions of Biliary Tract.—Walters directs attention to the effects of cholecystitis on the liver, on the common and hepatic ducts, and on the pancreas, and to the beneficial effects of cholecystectomy, with prolonged drainage of the common bile duct, as was noted in a group of patients who were jaundiced at the time of operation, but in whose common or hepatic ducts there were no stones. It is pointed out that penetrating ulcers of the posterior duodenal wall perforating into the pancreas produce a group of symptoms that simulate biliary obstruction. Frequently these ulcers pass unrecognized because of the normal appearance of the anterior duodenal wall. Other significant matters of which account is taken are an abnormally prolonged coagulation time of the blood, a change in the color, consistence and conformation of the liver, and a change in the color, quantity and quality of bile that drains out. These seem to be indexes of hepatic function.

Texas State Journal of Medicine, Fort Worth

28: 1-64 (May) 1932

Treatment and Results in Pulmonary Tuberculosis. J. A. Sevier, Colorado Springs, Colo.—p. 6.
Cancer and Irritative Lesions of Cervix. F. C. Beall, Fort Worth.—p. 8.
Preventive Frame of Mind in Obstetrics. H. R. Robinson, Galveston.—p. 11.
Railway Accidents and Surgery Thirty-Five Years Ago and Now. H. A. Barr, Beaumont.—p. 17.
Diagnosis and Treatment of Affections of Lumbosacral Region. W. C. Campbell, Memphis, Tenn.—p. 19.
Early Diagnosis of Intestinal Obstruction by Roentgen-Ray Examination. J. Q. Graves and J. G. Snelling, Monroe, La.—p. 25.
Spontaneous Pneumothorax in Children: Case Reports. L. C. Sams, Dallas.—p. 27.
Practical Use of Electrocardiogram. C. D. Strother, Sherman.—p. 29.
Modern Technic in Traumatic Surgery, with Demonstration of a New Clavicle Brace. C. Thomas, Houston.—p. 33.
Hypertension in Railway Employees. O. F. Gober, Temple.—p. 36.
Preventive Medicine in Commercial World. H. W. Stanley, Longview.—p. 38.
New Era in Medical Economics. W. F. Starley, Galveston.—p. 40.

Virginia Medical Monthly, Richmond

59: 129-196 (June) 1932

Preventive and Therapeutic Aspects of Central Nervous System Syphilis in General and Institutional Practice. D. C. Smith and R. E. Glendy, University.—p. 129.
Relation of Certain Pelvic Conditions to Remote Causes and Effects. J. C. Hirst, Philadelphia.—p. 134.
Hay Fever, with Comments on Past Season in Richmond. W. B. Blanton, Richmond.—p. 140.
Iodine Fast Hyperthyroidism: Problem in Treatment of Goiter. L. D. Keyser, Roanoke.—p. 144.
Gastric Cancer. M. O. Burke, Richmond.—p. 150.
Geriatrics. J. R. Hamilton, Nassawadox.—p. 153.
Recent Developments in Prostatic Surgery. J. F. Geisinger, Richmond.—p. 157.
Myocardosis. W. P. Adams, Norfolk.—p. 161.
Acute Appendicitis in Children. J. S. Horsley, Jr., Richmond.—p. 165.
Work of Virginia Health Department for Child Health and Protection. B. B. Bagby, Richmond.—p. 169.
Complete Outward Dislocation of Patella. W. B. Huff, Roanoke.—p. 172.
Granulocytopenia Due to Streptococcus Viridans: Report of Case. F. W. Shaw and R. L. Creekmur, Richmond.—p. 173.
Old Family Physician, Slowly But Surely, Coming Back into His Own. B. C. Keister, Washington, D. C.—p. 174.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

40: 279-342 (June) 1932

*Ureter After Nephrectomy. A. J. Scholl, Los Angeles.—p. 279.
*Surgery of Undescended Testes: Modified Torek Operation. A. B. Hepler, Seattle.—p. 286.
Surgery of Hypospadias and Epispadias in Male. A. B. Cecil, Los Angeles.—p. 297.
Fused Kidney with Bilateral Calculi and Unilateral Hydronephrosis. A. H. Peacock, Seattle.—p. 316.
Episiotomy. A. Mathieu, Portland, Ore.—p. 330.

Ureter After Nephrectomy.—Scholl believes that in the majority of cases, even when the ureter is extremely dilated, it is not necessary to remove the ureter when doing a nephrectomy. In cases in which the ureter and any retained contents are infected and obstruction to the lower ureter occurs, this obstruction must be relieved. If it is impossible to relieve this obstruction by conservative methods, a primary nephro-ureterectomy or a secondary ureterectomy should be performed.

Surgery of Undescended Testes.—According to Hepler, the functional imperfection of the undescended testis is the result of degeneration of the germinal epithelium from thermic changes because of the lack of scrotal protection. Because these changes do not take place before puberty, when there is an attempt to elaborate a mature germinal epithelium, placing the testis in the scrotum before this period will conserve its function and permit it to develop normally. The essential features of a successful orchiopexy are a careful and complete separation of the component structures of the spermatic cord without interference with the blood supply of the testis, and the temporary fixation of the testis to some structure outside the scrotum to guard against retraction until this inevitable tendency has been overcome. The importance of this temporary scrotal and testicular fixation cannot be overemphasized. The author describes a modification of the Torek operation which has given satisfactory results in twelve cases in the last year.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

9: 97-140 (April) 1932

Hypnosis and Anesthesia. B. Hollander.—p. 99
Remarks on Anesthesia and Analgesia. C. C. Marston.—p. 124.

British Medical Journal, London

1: 873-922 (May 14) 1932

*Vasovagal Syncope and Carotid Sinus Mechanism, with Comments on *Gowers's and Nothnagel's Syndrome.* T. Lewis.—p. 873.
*Effect of Pituitrin in Malignant Disease: Clinical Observations E. W. Riches and M. Kremer.—p. 877.
*Septic Foci and Normal Labor. Helen Leyton.—p. 880.
Spinal Anesthesia in Acute Obstruction. A. S. D. Russell and B. R. Sworn.—p. 882.
*Observations on Treatment of Chronic Ulcers of Leg. M Umanski.—p. 885.

Vasovagal Syncope and Carotid Sinus Mechanism.—Lewis states that thirteen years ago he became interested in what may be called common fainting attacks, or, more precisely, vasovagal syncope. Although he described his type of syncope in young soldiers in ill health, he recognized then, and has recognized since, that its incidence is wide. It is, in fact, the commonest form of syncope or fainting. It occurs in both sexes; it affects the young especially but by no means exclusively. There are states of the body that can be named as predisposing to it. Thus it is more usual in people who are out of condition or actually in poor health; it is more frequent after an illness or chronic infection. The presence of fatigue, a period of fasting, confinement to an overheated, overcrowded room, are not unusual attendant circumstances. The central feature of the attack is the syncope. In some cases the loss of consciousness occurs without warning of any kind and may then result in a heavy fall and injury. More usually the subject is aware that fainting is imminent and sits or lies down deliberately, or slips, or falls more slowly and involuntarily to the ground. The warning consists of a feeling of instability or uncertainty, a dimming of vision, and a feeling of giddiness. There is never any sense of rotation or of objects swinging around before the eyes, often a valuable point in differentiating auditory vertigo. The attack occurs rarely, if ever, while the subject is lying down, a point that in the history is often crucial in differentiating the attack from major attacks of cardiac syncope or epilepsy. From the start there is a progressive lowering of blood pressure and almost always a steep fall of heart rate, the pulse usually becoming imperceptible and the heart rate falling to 50 or 40 (unusually to 30 or 20) beats a minute. Pallor accompanies this fall of blood pressure; increasing in intensity, it ultimately becomes extreme in the face but is absent or much less evident in dependent parts, such as the hands. This pallor is of the type associated with simple drainage of blood from the skin to dilating visceral vessels. The cerebral manifestations indicate the degree and duration of cerebral anemia and, from the standpoint of the circulation, are to be regarded as incidental. When the circulatory changes happen gradually, syncope is led up to by feelings of insecurity and dimness of vision, and objectively by incoordination, confusion of speech, restlessness, yawning, and decreasing response to questions and to physical stimuli; actual loss of consciousness with flaccidity is the rule. If the changes are sufficiently profound, the pupils dilate and the conjunctival reflex vanishes; there may be slight clonic movements of the face, upper limb, and trunk. The tongue is not bitten, nor is the urine passed. In the severer attack, respirations are slow, deep and sighing; sweating is almost invariable, breaking out on lips and forehead, or over the body generally; usually free, it sometimes drenches the clothing. The author also calls attention to the fact that in recent years much interest has been aroused in a mechanism connected with what is now called the sinus caroticus. This mechanism has been shown to exercise a powerful controlling influence on heart rate, blood pressure and respiration, and especially in regulating the circulation to the brain. A rise of pressure within the carotid sinus results in a reflex lowering of heart rate and of systemic pressure; the former is produced through the vagus, and the latter through vasomotor nervous channels and through an effect on suprarenal secretion. The carotid artery contains the receptor part of the mechanism, the glossopharyngeal nerve conveys the impulse to the medulla; here the impulses exert two chief influences—they inhibit the heart and they depress vasomotor tone. This remarkable and seemingly purposive grouping of reflex cardiovascular effects also occurs when the depressor nerve is stimulated; it must surely depend, therefore, on a close linkage of the efferent channels by central parts of the nervous mechanism. And, given this linkage, it is highly probable that the central and efferent parts of this mechanism are disturbed in the clinical syndrome of vasovagal syncope, in which strong vagal effects are likewise combined with depressor vasomotor effects.

Effect of Solution of Pituitary in Malignant Disease.—Riches and Kremer report the results they obtained in the treatment of nine persons with malignant tumors by means of injections of solution of pituitary. Except in one case, in which there was a local diminution in the edema of the tongue overlying the growth, there was no beneficial effect that could be attributed to the injections. All the cases followed the usual course of the disease for the particular type of growth. In no case was life prolonged, nor was there regression of any of the growths.

Septic Foci and Normal Labor.—In an analysis of the records at the Oxford Maternity Home for the five years 1926 to 1930, Leyton found that the average length of normal labors in that institution has increased. The number of normal women living in the town of Oxford who had long labors (primiparas over twelve hours and multiparas over six hours) increased from 19.26 per cent in 1926 to 45.25 per cent in 1930. Among the women living in the country districts around Oxford it rose from 6 per cent in 1926 to 13 per cent in 1927, 19.5 per cent in 1928, 52.75 per cent in 1929, and 47.73 per cent in 1930. The only common factor found in cases of long labor was evidence of a chronic septic focus. A study of the temperature charts of patients in whom a chronic septic focus had been noted at the antenatal clinic revealed the fact that their temperature usually rose to 99 F. on three or more occasions during the puerperium (usually ten days). An analysis of the notes of the other normal cases which showed a rise of temperature on three or more occasions during the puerperium showed that these almost invariably were long labor cases, and, conversely, that short labors had an even temperature during the puerperium. Comparatively short labors are appearing in the recent records more rarely, and the actual average length of time spent in labor has increased by two hours in the last five years.

Chronic Ulcers of Leg.—From many years' experience in general practice, confirmed by recent clinical and bacteriologic tests, Umanski has come to the conclusion that even the most extensive ulcers of the leg of nonspecific character may heal under adequate ambulatory local treatment, provided the patient's general health is not too greatly impaired. The treatment should be directed toward eliminating microbic infection and stimulating the inherent natural forces of repair of the damaged tissues. A solution of 8 to 12 per cent of balsam of peru in glycerin and alcohol answers this purpose best, since not only has it a bactericidal action on the pyogenic organisms of the ulcer but it simultaneously promotes repair of damaged tissues by stimulating the granulating as well as the epithelization process. Glycerin acts as a good excipient for the balsam of peru and is useful as an exosmotic and hypertonic for draining ulcers and intensifying the antiseptic and penetrative action of the balsam of peru. Other methods should not be used until the method described has been given a fair trial. In ulcers of distinctly varicose character, some support of the limb by elastic bandages may be applied for some time, preferably only during the daytime.

Guy's Hospital Gazette, London

46: 77-96 (March 5) 1932

Suprarenal Gland. W. N. Mann.—p. 78.
Some Points in Prophylactic Treatment of Pyorrhea. C. W. Shuttleworth.—p. 83.
Zondek-Aschheim Reaction and Early Diagnosis of Pregnancy. P M. F. Bishop.—p. 89.

Indian Journal of Medical Research, Calcutta

19: 987-1238 (April) 1932. Partial Index

Comparative Value of Antiplague Bilivaccine and Haffkine's Plague Prophylactic. B. P. B. Naidu and R. G. Sathe.—p. 987.
*Studies on Serum Proteins in Leprosy, with Especial Reference to Hydnocarpus Treatment. G. R. Rao.—p. 993.
Note on Type of Cholera Bacteriophage Isolated from Cases During Small Epidemic of Cholera in Madras. C. G. Pandit and R. S. Rao.—p. 1019.
Note on Antigenic Structure of Secondary Cultures Obtained with Three Types of Cholera 'Phages and a Strain of Cholera Vibrio. C. G. Pandit and R. S. Rao.—p. 1023.
Some Facts About Incidence of Splenomegaly in Bengal. M. N. De.—p. 1029.
Protein Graphs in Syphilis with Their Relation to Wassermann Reaction. R. B. Lloyd.—p. 1055.
Constant Humidity Apparatus for Mosquitoes. M. O. T. Iyengar and M. K. P. Sarathy.—p. 1091.
*Electric Charge of Erythrocytes: Part I. Effect of pH and Quinine Dihydrochloride. R. N. Chopra and S. G. Chaudhury.—p. 1115
Further Observations on Seasonal Variation in Hookworm Infection. P. A. Maplestone.—p. 1145.
Researches on "Stone": Part XIII. Roentgen-Ray Diffraction Studies of Calculi. S. Ranganathan.—p. 1153.
Infection of Stratified Epithelium in Leprosy. E. Muir and S. N. Chatterji.—p. 1163.
Vital Capacity of One Hundred and Three Male Medical Students in South India. B. T. Krishnan, Assisted by C. Vareed.—p. 1165.
*Experiments on Protection of Monkeys with Antivaccinial Serum Against Viruses of Vaccinia and Variola. C. G. Pandit, K. P. Menon and M. O. Sahib.—p. 1185.
Note on Blood Cholesterol in Osteomalacia. T. A. Hughes, D. L. Shrivastava and K. S. Malik.—p. 1205.

Serum Proteins in Leprosy.—Rao presents the results of a study of the serum proteins in 252 cases of leprosy, with especial reference to hydnocarpus treatment and in fifty-six healthy controls. Serum albumin shows a significant reduction in lepers as compared with healthy controls and this reduction is probably caused by leprosy per se. Lepers of all types, except certain phases, have a considerably higher globulin value than the healthy controls and the untreated leper controls. The effects of an injection of any hydnocarpus preparation seems to be a marked increase in the globulin value in all types of cases detectable on the second day after the injection. The further changes in the serum globulin on other days after the injection are described. A certain difference in the behavior of the globulin value in the two main types of lepers, namely, cutaneous and neural, was noted. The formaldehyde test in uncomplicated cases of leprosy is never positive. There seems to be no definite relationship between solution of formaldehyde coagulation and serum globulin in lepers or lepra reactions.

Electric Charge of Erythrocytes.—According to Chopra and Chaudhury, the negative electric charge of erythrocytes in isotonic solution of dextrose is more susceptible to changes in ionic environment than in physiologic solution of sodium chloride. The higher the alkalinity of the environment, the greater is the negative charge. The greater diminution in the negative charge on the alkaline side of the medium in presence of a definite concentration of quinine dihydrochloride shows a relatively higher absorption of basic alkaloidal ions. These facts suggest that the higher activity of quinine salts in an alkaline solution is at least partly due to the relatively higher absorption of the alkaloidal ions in such a medium.

Protection with Antivaccinal Serum Against Viruses of Vaccinia and Variola.—The protective action of antivaccinial serum obtained from hyperimmunized buffaloes was studied by Pandit and his associates in experimental infection of monkeys with the viruses of vaccinia and variola. The viruses were introduced by scarification and the serums were given subcutaneously in all cases. When the serum was administered along with the virus, a considerable degree of protection was obtained against the viruses both of vaccinia and of variola. When the serum was given at varying intervals, after vaccination with vaccine lymph, no absolute protection was demonstrated in any case but the course of vaccination was modified to a slight extent. On the other hand, the serum gave considerable protection against variola virus even though it was administered four hours after the virus was introduced by scarification. Even if the serum was given twenty-four hours after, the course of the reaction was considerably modified. Serum obtained from convalescent cases of smallpox showed a much higher degree of protection than did that obtained with the buffalo immune serum. The results warrant an extension of efforts both to produce from animals an antivaccinial serum of high potency and to investigate the benefit that may be obtained by the use of convalescent human serum.

Indian Medical Gazette, Calcutta

67: 241-300 (May) 1932

Rheumatism in India. E. H. V. Hodge.—p. 241.
Alepol in Treatment of Leprosy. A. D. Bhandari.—p. 244.
Observations on Plasmodium Infection Which Causes Hemoglobinuria in Certain Species of Monkey. L. E. Napier and H. G. M. Campbell.—p. 246.
Curative Value of Locally Prepared Sample of Sulpharsenobenzene: Thiosarmine: Part I. B. G. Mallya and B. B. Maity.—p. 249.
Cytologic Studies of Blood and Tissues in Kala-Azar and Associated Conditions: Part I. Supravital Staining Technic. L. E. Napier, K. V. Krishnan and J. C. Lal.—p. 251.
Observations on Malaria in Puri District, Orissa. M. K. P. Sarathy.—p. 254.
Prognostic Value of Aldehyde Reaction in Kala-Azar. R. N. Chopra and S. G. Chaudhury.—p. 260.
Acriflavine as Counterstain in Ziehl-Neelsen Method of Staining. H. T. Ince.—p. 262.
Preliminary Note on New Types of Cholera 'Phage: Types D and E. C. L. Pasricha, A. J. de Monte and S. K. Gupta.—p. 262.

Irish Journal of Medical Science, Dublin

No. **76:** 145-192 (April) 1932

Advent of the County Medical Officer of Health. J. A. Harbison.—p. 145.
Resection of Presacral Nerve for Intractable Dysmenorrhea Complicated by Severe Bleeding. D. J. Cannon.—p. 150.
Note on Menstruating Mucosa of the Human Uterus. Ninian Falkiner.—p. 159.
Blood Groups and Paternity. G. C. Dockeray.—p. 163.
Rhinoplastic Surgery Through the Ages. A. B. Clery.—p. 170.
Note on Tuberculosis of Wrist. T. J. D. Lane.—p. 177.
Intravenous Liver Therapy in Pernicious Anemia. E. T. Freeman.—p. 182.

Journal of Pathology and Bacteriology, Edinburgh

35: 301-476 (May) 1932

Further Account of Trinidad Outbreak of Acute Rabic Myelitis: Histology of Experimental Disease. E. W. Hurst and J. L. Pawan.—p. 301.
*Classification of Cancer of Rectum. C. E. Dukes.—p. 323.
Pathology of Aneurysm: Review of One Hundred and Sixty-Seven Autopsies. H. G. Garland.—p. 333.
*Malignant Melanotic Tumor of Ganglion Cells Arising from Thoracic Sympathetic Ganglion. W. G. Millar.—p. 351.
Medullo-Epitheliomas of Brain and Retina. T. B. Davie.—p. 359.
*Isolation of Motile Organisms from Apparently Nonmotile Cultures of B. Typhosus, B. Proteus, B. Pestis, B. Melitensis, and so on. D. B. Colquhoun and J. Kirkpatrick.—p. 367.
Occurrence of True Bone Within Renal Calculus. G. Stuart and K. S. Kirkorian.—p. 373.
Effect of Carbon Monoxide and Other Agents on Rate of Tumor Growth. J. A. Campbell.—p. 379.
Interstitial Reactions Caused by Various Dusts and Their Influence on Tuberculous Infections. E. H. Kettle.—p. 395.
Transmission of Fowl-Tumors to Pheasants. C. H. Andrewes.—p. 407.
Abnormalities of Mouse Suprarenal. R. Whitehead.—p. 415.
Fetal Rickets. J. P. Maxwell, C. H. Hu and H. M. Turnbull.—p. 419.
Tumor Immunity: II. Antiserum Treatment of Spontaneous Mouse Carcinoma. T. Lumsden.—p. 441.
Fat Mobilization in Starvation. J. H. Dible.—p. 451.

Cancer of Rectum.—Cancers of the rectum are divided by Dukes into A, B and C cases according to the extent of spread. A cases are those in which the growth is limited to the wall of the rectum; B cases those in which there is extrarectal spread but no lymphatic metastases; C cases those in which metastases are present in the regional lymph nodes. A striking difference is found in the operative mortality rate and in the survival period after operation in these three groups. There is reason to believe that in A cases the disease is completely eradicated by rectal excision, and the excellent results of operative treatment confirm the opinion that lymphatic metastases are not found until a rectal carcinoma has spread by direct continuity to the extrarectal tissues A good prognosis is justified also in B cases, though slightly less favorable than in A The results of surgical treatment in C cases are disappointing

Melanotic Tumor of Ganglion Cells—Millar describes a case of a highly malignant tumor composed of cells of nervous origin whose structure approximated, in a greater or lesser degree, that of ganglion cells The more highly differentiated ganglion cells were loaded with pigment this was a true melanin and was present in sufficient quantity to make parts of the tumor as black as an ordinary cutaneous melanoma The author adduces evidence to show that the tumor arose from nerve cells in the seventh left thoracic sympathetic ganglion In view of the undoubted nervous origin of this tumor, he believes that it is both possible and likely that a similar origin can be postulated for some at least of the melanomas arising in the suprarenal medulla

Motile Organisms from Nonmotile Cultures—Colquhoun and Kirkpatrick call attention to the fact that when grown on semisolid medium, e g, one containing 0 3 per cent agar plus 5 per cent gelatin, many organisms develop motility which are nonmotile when grown in the ordinary fluid or solid mediums Motile strains have been recovered in this way from nonmotile cultures of Bacillus typhosus Bacillus proteus, the Salmonella group and Bacillus pestis, Bacillus mallei and Brucella melitensis In certain cases the original nonmotile cultures when stained for flagella showed the presence in abundance on such structures, e g, Bacillus typhosus from the feces of a chronic carrier In others, e g, Bacillus suipestifer, flagella were extremely scanty, only a few bacilli showing a single flagellum In others, again no flagella could be demonstrated Certain nonmotile strains of Bacillus typhosus, Bacillus pestis, Bacillus dysenteriae Shiga and Bacillus dysenteriae Flexner-Y failed to develop flagella and motility after repeated subculturing in semisolid mediums A satisfactory explanation of the phenomenon described has not been obtained But the evidence suggests that the development of flagella and motility depends on a suitable viscosity of the medium in which the organisms are growing

Journal of Tropical Medicine and Hygiene, London

35 145 160 (May 16) 1932

Treatment of Schistosomiasis Haematobium R Girges—p 145
Copper Colored Variety of Caraate Caused by Trichophyton Megnini (Tr Rosaceum) V Puntoni and E J Pampana—p 154
Culture of Bacillus Tuberculosis on Petragnani s Medium C F Ceriuti—p 157

Lancet, London

1 1079 1130 (May 21) 1932

*Control of Carbohydrate Metabolism J J R Macleod—p 1079
*Injection of Umbilical Vein in Retained Placenta D W Currie—p 1087
*Serum Agglutinations to Typhoid Group in Cases of Pulmonary Tuberculosis J R A Madgwick and F Partner—p 1091

Control of Carbohydrate Metabolism—Macleod states that from the evidence at present available it may be justifiable to postulate that when the requirements are more or less steady, the rate of sugar production is regulated by alterations in the balance between insulin and epinephrine in the blood, but that when there is a sudden call for sugar to meet the demands of great muscular activity, direct nervous stimulation of sugar secretion by the liver is set up As to how the balance between insulin and epinephrine is adjusted, it is possible, since the secretion of each of these hormones is subject to nerve control, that the sugar concentration of the blood supplying the nerve centers is the stimulus that acts on them In the light of the experiments which the author describes, these centers are probably situated somewhere in the pons, and the discharge of impulses from them, which is set up by decerebration, acts in such a way as to cause increase in the secretion of epinephrine and decrease in that of insulin, at the same time that dextrose secretory impulses are discharged to the liver

Injection of Umbilical Vein in Retained Placenta—Currie summarizes the procedure adopted in the Leeds Maternity Hospital for the conduct of the third stage of labor Immediately after the delivery of the child, the patient is turned on her back and the cord is placed in a sterile dish between her thighs The height of the fundus is noted, but the uterus is not touched unless undue loss of blood necessitates the use of gentle massage to induce a contraction In most cases the patient is left undisturbed for twenty minutes, except that the height of the fundus is observed from time to time, also the presence of hemorrhage In normal cases the simple tests for the position of the placenta are made (lengthening or shortening of the cord, the height of the fundus, and the shape, contour and mobility of the body of the uterus) If such tests reveal that the placenta is lying in the lower segment or vaginal vault, the fundus is massaged to elicit a contraction and the uterus is then used as a piston to push the placenta out of the vagina If the tests show that the placenta has not left the uterus, they are repeated at intervals of five minutes No alarm need be felt if the placenta is retained without hemorrhage, but should the placenta be retained and a postpartum hemorrhage occur this will continue until the placenta is removed It was formerly the custom at the Leeds Maternity Hospital to attempt to express the placenta by means of Credé s maneuver, and should this be unsuccessful to repeat the maneuver at intervals and under an anesthetic if necessary before resorting to the dangerous manipulation of manual removal Now injection of the umbilical vein is practiced A Scannel blood transfusion apparatus is used This consists of a 20 cc syringe with a three-way tap and thus overcomes the delay made necessary by the repeated disconnection of the ordinary record syringe The patient is placed comfortably in bed with the lower part of the abdomen and thighs exposed, the thighs at the same time being abducted The vulva and the surrounding skin and the cord are thoroughly cleansed and the cord is placed on a sterile towel lying between the patient's legs The needle is inserted into the umbilical vein about 6 inches (15 cm) from the vulva, and held in position by a ligature It is better to leave some undamaged cord between the needle and the vulva in case it is necessary to reinsert the needle The injection of physiologic solution of sodium chloride is now commenced, and this is injected at the rate of from 300 to 400 cc in two and a half minutes, 350 cc is about the average amount of fluid used On completion of the injection, artery forceps are placed on the cord, the needle is removed, and the placenta is expressed if it has not been already spontaneously delivered As the fluid enters the placenta the fundus of the uterus is felt to rise up in the abdomen and later strong uterine contractions occur The author does not deem it necessary to await the spontaneous expulsion of the placenta but rather aids its delivery by immediate expression, during a contraction, after the completion of the injection The method presents to the physician, whether of a clinic or in general practice, an easy means of obtaining completion of the third stage of labor, without the aid of any further instruments than he normally carries in his bag, without the necessity of much preparation or anesthetic, with a fair proportion of success, and above all without the great fear of puerperal infection and risk of death that accompany the manipulation now generally practiced, namely, "manual removal"

Serum Agglutinations to Typhoid Group of Organisms—Seventy-three cases of pulmonary tuberculosis with a negative history of TAB inoculation or infection were examined by Madgwick and Partner for agglutinins to the typhoid group of organisms and these were found to be present in the blood of twenty-five, or 34 2 per cent These twenty-five cases showed reactions of diagnostic significance, which persisted for three months during the course of the investigation Control investigations of 100 cases of nontuberculous mental hospital patients showed slightly positive reactions in five cases only, one of which was possibly the result of prophylactic inoculation against the typhoid group of fevers during army service The results suggest that, in a case showing persistent agglutination reactions of average low titer and not showing the rise of titer associated with the progress of true typhoid infections, the possibility of tuberculosis should not be overlooked

Medical Journal of Australia, Sydney

1 565 598 (April 23) 1932

Spirit of the Association A J Gibson—p 565
Certain Aspects of Acidosis I S Hansman—p 570
Midwifery in General Practice I May—p 575

Bulletin Médical, Paris

46: 433 448 (June 18) 1932

Examination and Treatment of Backward Child E Apert —p 437
Continuous Fever as Only Symptom in Acute Rheumatism R Lutembacher —p 439
*Scintillating Scotoma in Diagnosis of Pulmonary Tuberculosis P Braunstein and J Stephani —p 140

Scintillating Scotoma in Diagnosis of Pulmonary Tuberculosis.—Braunstein and Stephani noted scintillating scotoma in 80 per cent of patients with pulmonary tuberculosis examined in an investigation covering several hundred cases This type of scotoma manifests itself clinically in the form of an attack which starts with the appearance of a dark spot in front of both eyes The spot extends accompanied by a vibratory motion, called scintillations, at its periphery and zigzag colored lines until there is a considerable visual defect, frequently of hemianopic form Sometimes it is even accompanied by headache, malaise, vertigo, nausea and vomiting The attack, which lasts from several minutes to a quarter of an hour, resists all treatment and finally ceases completely While it cannot be considered a pathognomonic sign the authors think it should be placed among the list of classic general symptoms of pulmonary tuberculosis whether it occurs during the premonitory period or the early or the advanced stage of the disease They think that it not only is a reliable sign of pulmonary tuberculosis but also has a certain prognostic value, as its presence and persistence during the course of the disease indicates, better than many other tests, a weakened resistance

Presse Médicale, Paris

40: 925 940 (June 11) 1932

*Treatment of Alimentary Anaphylaxis by Liquid Petrolatum C Richet and R Couder —p 925
Pathogenic Agent of Typhus Fever J Segal —p 926

Treatment of Alimentary Anaphylaxis by Liquid Petrolatum—Richet and Couder, on the basis of clinical experience, state that liquid petrolatum given in doses of one teaspoonful at the beginning and at the middle or end of each meal is capable of preventing anaphylactic disturbances in case of alimentary anaphylaxis They report five cases three of urticaria, of many months' duration, one of diarrhea of twenty years' standing and one of intense vertigo and abdominal pain of six months' duration in which the treatment with liquid petrolatum was effective within a few days This method may be associated with other forms of antianaphylactic therapy, such as peptone therapy or elimination diet In two cases the cure continued after the treatment was stopped The authors thought at first that the oil acted as a semiprotective coating for the digestive mucosa which retarded the absorption of the anaphylactizing proteins, so that the organism had time at each meal to antianaphylactize itself However, numerous experiments on guinea-pigs contradicted this explanation, so the mechanism of this therapy still remains obscure

Schweizerische medizinische Wochenschrift, Basel

62: 553 572 (June 11) 1932

*Prophylaxis of Postoperative Venous Thrombosis H Iselin —p 553
Functional Process in Nervous System F Verzar —p 556
Therapeutic Use of Organic Gold Salts K Ziegler —p 560

Prophylaxis of Postoperative Venous Thrombosis.—Iselin stresses the following rules as essential for the prevention of postoperative thrombosis 1 Injury of the vascular epithelium should be avoided before, during and after operations Endothelial injuries may result from intravenous administration of chemical substances and consequently these should be avoided 2 The physiologic composition of the blood should be respected and consequently the intravenous injection of large amounts of sodium chloride solutions is inadvisable To administer fluid to the blood the author considers the subcutaneous administration as better and he emphasizes the significance of isotonia 3 In order to improve and accelerate the circulation, he recommends the application of remedies that effect hyperemization, such as warm mustard applications to the legs These not only counteract stasis in the legs but also aid in drawing the blood away from the overfilled portal system after laparotomies, and from the lungs following inhalation anesthesia They should be applied soon after the operation, in order to be effective during the postoperative circulatory crisis, which develops particularly in obese patients

Archivio Italiano di Urologia, Bologna

8: 539 650 (May) 1932

*Strictures and Congenital Atresia of Urethra G Tarozzi and G Bucciardi —p 539
Study of Diuretic Cerebral Hormones by Puncture of Saline Center in Floor of Fourth Ventricle E. Mingazzini —p 601

Strictures and Congenital Atresia of Urethra.—Tarozzi and Bucciardi state that in complete congenital closure of the urethra there is also congenital dilatation of the bladder, whereas in stricture there is in addition to this dilatation a compensatory hypertrophy of the bladder wall Two types of tumor come into question in urethral stricture, namely, fibromyoma of the bladder and the ganglioneuroma found in certain zones of nervous ganglial elements Neoformations derived from blastomatous proliferation of nervous elements consist of neuroblastoma, paragangliomas and ganglioneuromas In a number of the authors' cases, the stricture consisted of a hypertrophic and hyperplastic process involving all the muscular, connective tissue and nervous layers of the bladder and was accompanied by hypoplasia of the genital organs In a few cases the presence of hyperplastic nervous tissue in the bladder militates against the fibromatous and fibromyomatous character of the bladder changes When there is no closure but simply congenital stricture of the urethra, the resulting alterations through dilatation and hypertrophy of the bladder are already established during intra-uterine life and are more accentuated after birth Congenital urethral strictures are either partial (valvular) or annular Nothing is known of the causes and primary conditions by which a congenital stricture is determined It occurs generally in males Some hold that only those cases are congenital wherein the form of the utricle and the disposition of the glands of the verumontanum determine a true hyperplasia of the urethral crest, with production of a partial stricture corresponding to the internal urethral orifice Others maintain that toxic and infectious processes in intra-uterine life, resulting in deformity and sclerosis, can easily determine stricture

Boll. e Memoria d. Soc. Piemont. d. Chir., Biella

11: 519 564 (May 14) 1932

Arthroplasty of Knee D Bargellini —p 519
Operation for Diverticulum of Duodenum at Duodenojejunal Angle M Donati —p 523
*Gallstone of Rare Composition O Uffreduzzi —p 531
Importance of Roentgen Examination in Some Cases of Calculosis of Choledochus A Foa —p 536
Technic of Examination of Motor Function of Urinary Bladder E Ragnotti —p 545
*Importance of Renal Function in Postoperative Insufficiency of Liver L Stropeni —p 554

Gallstone of Rare Composition—Uffreduzzi found in a patient a gallstone consisting almost completely of calcium carbonate On reviewing the case literature of gallstones he did not find anything similar to his case He states that calcium frequently enters into the composition of biliary stones but only in combination with bilirubin or cholesterol or in compound stones The mucosa of the cholecystic wall undoubtedly produces calcium but this cannot explain a pure calcium carbonate calculus

Renal Function in Postoperative Insufficiency of Liver.—Stropeni states that insufficiency of the liver is objectively manifested above all by the appearance of ketone bodies in the urine (acetone, diacetic acid, beta-oxybutyric acid) He studied both the acetone content of the urine and the amount of ketone bodies in the blood Normally the blood contains ketone bodies to the amount of from 13 to 25 mg per hundred cubic centimeters After an operation (usually for calculous cholecystitis) there is a slight increase in the ketone bodies corresponding to the amount of acetone in the urine A slight and decreasing elimination of acetone corresponds to a progressive increase of ketone bodies in the blood The determining cause of the coma in diabetes is not so much the increase in the production of ketone bodies as the appearance of a renal insufficiency permitting the ketone bodies to accumulate in the blood In regard to ketone bodies, the kidneys are divided into three groups (1) normal kidneys with great reserve power, (2) kidneys apparently normal but having slight reserve (could be called "compensated kidneys'), and (3) kidneys without reserve power with already altered function; namely, "decompensated kidneys." Insulin is the specific remedy for ketonemia in decompensation of the kidneys, but if not used at once it cannot save the kidney from irremediable alteration. The behavior of renal function observed in respect to the elimination of nitrogen corresponds perfectly to that of the kidneys in the presence of toxic substances such as ketones. The author concludes that the cause of every accident in cases of postoperative functional insufficiency of the liver can be traced to the kidneys.

Archivos de Medicina, Cirugía y Espec., Madrid

35: *429-448 (May 28) 1932*

*Inflammatory Strictures of Rectum. M. Corachán.—p. 429.

Inflammatory Strictures of Rectum.—From observations made in eighteen patients with inflammatory strictures of the rectum (five men and thirteen women), Corachán concludes that the strictures are consecutive to inflammatory changes in the lymph nodes of the pararectal tissues. The changes in the lymph nodes originate in a primary infection, either genital or anorectal, which in most cases is of the nature of lymphogranulomatosis. Rectitis, which represents the initial stage of development of the inflammatory strictures, is caused by the lymphatic stasis plus a retrogressive infection, provoked by the adenopathy of the lymph nodes and propagated through the lymph chanels. The perianorectal suppuration is caused by septic foci in the regional lymph nodes. Patients with inflammatory strictures of the rectum usually consult the surgeon too late, when the disease is in an advanced stage. As the only treatment of inflammatory strictures of the rectum, the formation of a permanent artificial anus, which the patient can operate at will, seems advisable. When the disease is not yet in an advanced stage and also when the patients do not improve after the formation of an artificial anus, the removal of the distal segment of the sigmoid portion of the colon (which remains after the artificial anus is made) gives satisfactory results. However, if the sigmoid flexure is not included in the pathologic process, its resection is unnecessary. The technic of the operation is simple and the mortality is low.

Semana Médica, Buenos Aires

39: 1505-1572 (May 19) 1932. Partial Index

*Polyneuritis Caused by Triorthocresyl Phosphate Poisoning. R. Carrillo and J. W. G. Ter Braak.—p. 1511.
Postoperative Pharyngeal Dysesthesia. E. Riccitelli and Y. Franchini.—p. 1547.
Undulant Fever in Argentina. E. A. Molinelli.—p. 1550.
Induction of Labor by Hypophysin. H. F. Adamo.—p 1553.
Heredosyphilitic Polydactylism: Case. A. E. Despontin.—p. 1555.
Juvenile Tabes: Case. I. Maldonado Allende.—p. 1559.

Polyneuritis Caused by Triorthocresyl Phosphate Poisoning.—From clinical observations made in thirty-seven young women with toxic polyneuritis following the use of apiol as an abortifacient, and also from an anatomic and experimental study of this type of polyneuritis, Carrillo and Ter Braak conclude that the disease manifests itself, after a period of incubation of seventeen days, by sudden development of paralysis of the distal segments of the limbs associated with atrophy of the hands and the feet, disappearance of the achilles tendon reflex, with conservation of the patellar reflex, and absence of disturbances of sensation. The close similarity of the toxic apiol polyneuritis with two other types of toxic polyneuritis (polyneuritis caused by creosote phosphate in the treatment of tuberculosis and the so-called ginger paralysis described in the United States in 1930) made it advisable to classify the three forms of polyneuritis mentioned as included in only one nosologic group. The causal agent in all three forms is triorthocresyl phosphate (which is present in both the ginger extract and in the commercial preparations of creosote phosphate, and apiol). The authors succeeded in reproducing "polyneuritis gallinarum" in a group of chickens after feeding the animals with apiol, obtained from the patients. Paralysis affects the territory supplied by the sciatic nerve. Study of the animals showed that the disease causes great pathologic changes in the muscles, nerves, the genitalia and the liver. The paralyzed territory presents an intense muscular atrophy. The alterations of the nerve fibers, which are of a periaxial and not of a wallerian type, involve selectively the myelin sheath. There are proliferations of the sheath of Schwann and structural alterations of the neuraxis. The changes in the spinal cord are secondary. The poison seems to have a selective action of fixation on the phospholipids and on the distal parts of the nerves, thus causing a direct degeneration of the muscles and, in grave cases, a retrogressive degeneration in the spinal cord. The clinical picture of apiol polyneuritis is dissimilar to the clinical pictures presented by other types of toxic polyneuritis previously reported. It presents only a slight similarity to that of pure phosphorus polyneuritis (caused by phosphorus or its compounds). Patients with both slight paralysis and slight atrophy improve rapidly. When the condition causes great atrophy and intense impotence of the muscles resulting in marked paralysis, the return to normality is slow (between two and three years).

Archiv für klinische Chirurgie, Berlin

170: 331-510 (May 23) 1932

Skeletal Metastases in Hypernephroma. W. Lehmann.—p. 331.
Experimental Investigations on Pathology of Suprarenals. H. Widenhorn.—p. 381.
*Disturbances of Consolidation Following Orthopedic Osteotomies of Long Bones. M. Brandes.—p. 408.
Resection of Ulcerated Stomach in Infrapapillary Duodenal Stenosis. A. Plenk.—p. 427.
Gastric Phlegmon. H. Nahrath.—p. 431.
Double Ulcer of Duodenum: Pathology of Duodenal Ulcer. O. Bsteh.—p. 444.
Development and Significance of Synovial Villi. O. Siber.—p. 458.
*So-Called Hyaline Thrombosis in Profuse Renal Hemorrhage. D. Schwarz.—p. 470.
Malacia of Os Lunatum in Electrical Trauma. W. Wagner.—p. 483.
Surgical Treatment of Pancreatic Cysts. H. Neuffer.—p. 488.
Clinical and Surgical Significance of Outgrowths on Vesical Mucous Membrane Following Tuberculosis. T. Cohn.—p. 493.
Multiple Carcinomas. J. Körbler.—p. 505.
Method for Subcutaneous Division of Plantar Aponeurosis. A. S. Tokmakow.—p. 508.

Disturbances of Consolidation Following Orthopedic Osteotomies of Long Bones.—Observations on *621* orthopedic open osteotomies revealed to Brandes the following: 1. In *1.2* per cent of the cases there were disturbances in the healing process, but a pseudo-arthrosis developed in only one instance. *2.* The disturbances in the consolidation were caused by various local changes, such as by a disturbance in the callus formation due to a second surgical intervention at the site of the osteotomy, by bolting of the medullary cavities of the bones of the forearm, by a wire suture of the humerus and by a slight infection of a hematoma on the tibia. In two patients with severely sclerosed old rachitic bones, the consolidation was considerably retarded, and in one instance of Springer's operation the resorption of the wedge led to pseudo-arthrosis. 3. In one case there was no local cause but a gravidity prevented the callus formation. 4. The assumption that not the operative procedures, but rather endocrine disorders are the cause of the retardation in the consolidation, was not confirmed by the author's observations. 5. After osteoclasis he never noted complications or retardation in the healing process. The osteotomy disturbances were most frequent in the leg; dominance of one sex was not noticeable. 6. In the correction of deformities, it should be the aim to obtain results with the smallest intervention.

So-Called Hyaline Thrombosis in Profuse Renal Hemorrhage.—Schwarz relates the clinical history of a patient, aged *24*, in whom on account of life endangering hematuria, chills and severe, colic-like pains in the region of the right kidney, a nephrectomy was done. The microscopic examination revealed a localized thrombosis of the interlobular vessels and of their branches with hyaline fibrin. Subcapsularly, in the region in which the largest number of vessels were thrombosed, there was a wedge-shaped hemorrhagic infarct and several smaller, older infarcts. Where the vessels were not obliterated with the hyaline fibrin, they contained besides fibrin also erythrocytes. The same formations were found in the uriniferous tubules, especially in the junctional tubules and in the collecting tubules. The cause of the formation of this hyaline fibrin remains unexplained, but the author assumes that the erythrocytes participate in its formation and that the casts in the uriniferous tubules may also be formed from fibrin, for morphologically as well as in their staining characteristics the casts are like the thrombi in the vessels.

Dermatologische Zeitschrift, Berlin

64: 1-126 (June) 1932. Partial Index

*Does the Pathogenic Agent of Syphilis Have Other Forms or Stages of Manifestation Besides Spirochetes? F. Jahnel, R. Prigge and M. Rothermundt.—p. 7.
Peculiar Venous Changes in Experimental Frambesia of Rabbits. E. Hoffmann.—p. 29.
*Gumma of Thyroid: Differential Diagnosis of Gumma and Tuberculous Granulation Tissues. P. Fasal.—p. 43.
Tertiary Syphilitic Superficial Cutaneous Infiltrates. Ruth Lindemann. —p. 51.
*Statistics on Lichen Ruber. H. Freund.—p. 57.

Does the Pathogenic Agent of Syphilis Have Other Forms or Stages of Manifestations Besides Spirochetes?—Jahnel and his associates point out that soon after the discovery of Spirochaeta pallida the question arose whether, besides the spiral form, there are yet other forms or stages of the pathogenic agent of syphilis. After reviewing the theories, the authors describe their studies on this problem. They reach the conclusion that although the syphilitic organism can occasionally be demonstrated by vaccination when the microscopic examination does not reveal the spirochetes, this does not justify the assumption that the syphilitic organism is not present in the spirochete form and must therefore be present in the ultravisible form. They believe that the cause of the frequent failures of the microscopic demonstration of the spirochetes is their small number, for they observed that the direct microscopic demonstration fails in blood suspensions in which the spirochete content is below a certain limit; nevertheless by means of these suspensions it is possible to produce a typical infection. They found that if the number of syphilitic microorganisms is less than 300 per cubic millimeter it is no longer possible to detect them in the dark field. As another factor against the existence of an ultravisible form of the syphilis virus they cite the negative results of filtration experiments.

Gumma of Thyroid.—According to Fasal, syphilis of the thyroid, although comparatively rare, may occur during secondary as well as tertiary syphilis. The rarity of syphilitic involvement has been explained on the basis of the iodine content of the thyroid, the iodine protecting the healthy gland against syphilis, whereas the thyroid with impaired function lacks resistance against syphilis. Histologically verified cases of syphilis of the thyroid during the secondary stage are extremely rare. Clinically, the gumma of the thyroid usually presents the aspects of a rapidly growing tumor, which is often sensitive to pressure, which by compression of the trachea and of the esophagus may cause dyspnea and difficulty in swallowing, and which is frequently taken for a malignant struma. However, the literature contains reports also of cases of gumma of the thyroid in which the diagnosis of syphilis was based only on the positive serologic reactions and on the effectiveness of the antisyphilitic therapy. But the author shows that the diagnosis of syphilis of the thyroid is not always justified in cases in which a struma disappears following antisyphilitic treatment, for it has been known that a struma that already existed before the syphilitic infection was influenced by antisyphilitic treatment. Histologically, because of the abundance of giant cells and the frequently pronounced caseation, there is a considerable resemblance to tuberculous granulation tissues. The author describes a case which had several times been diagnosed as malignant struma. However, the positive syphilitic seroreactions and the rapid improvement following antisyphilitic treatment indicated syphilis. Yet this diagnosis could have been made also on the basis of the histologic examination. In discussing the histologic examination, the author mentions and evaluates the various stains and he stresses that the Bielschowsky-Maresch method of impregnation with silver is especially valuable. When this method is employed the gumma always presents a rich meshwork of fresh, fine tissue fibrils without connection with the former stroma, whereas the tuberculous caseation presents only rests of old tissue fibrils.

Statistics on Lichen Ruber.—A statistical review of 1,124 cases of lichen ruber, which were observed during the years from 1914 to 1930, convinced Freund that the incidence of lichen ruber is 20 per cent higher among men than among women. With increasing age the incidence of lichen ruber increases, and it is highest in persons aged between 50 and 60. Seasonal fluctuations were not observed.

Deutsche Zeitschrift für Chirurgie, Berlin

236: 97-168 (May 17) 1932

*Measurement of Skin Temperature During Anesthesia and Its Significance for Prognosis. E. Mayer.—p. 97.
Disturbances of Carbohydrate and of Acid-Base Metabolisms as Well as of Gas Exchange in "Avertin" Anesthesia: Their Modification by Oxygen and Carbon Dioxide Inhalation. H. Fuss and E. Derra.—p. 114.
*Pancreatitis Following Surgical Interventions on Biliary System. H. L. Popper.—p. 124.
Bacteriology and Therapy of Pneumococcic Peritonitis. T. Eck and M. Gundel.—p. 137.
Retrograde Pyelography. W. Roller.—p. 147.
Free Perforation of Pyonephrosis into Abdominal Cavity. H. Hammel. —p. 155.
Implantation of Bone (Axhausen's Method) for Treatment of Pseudo-Arthrosis of Bones. T. Mayeda —p. 159.

Measurement of Skin Temperature During Anesthesia.—Induced by the studies of Ipsen and Foged, who had found that the skin temperature during operations gives indications for the postoperative course, Mayer studied this problem on 196 patients. He found that normally anesthesia increases the skin temperature and that this is most clearly noticeable on the sole of the foot. The increase is due to a dilatation of the cutaneous arteries, especially of the arterioles. Under the influence of ether-oxygen anesthesia, which in some instances was deepened by the administration of a few drops of chloroform, the skin temperature increased on the average by about 5 degrees centigrade. In combined "avertin" and nitrous oxide-oxygen anesthesia, the skin temperature likewise increases by about 5 degrees centigrade. The increase is more rapid than in ether anesthesia. In spinal anesthesia the temperature increase follows immediately after the injection of the anesthetic. Under the influence of local anesthesia, there is as a rule no temperature increase, only occasionally increases from 4 to 6 degrees centigrade being noted. In regard to the prognostic significance of the skin temperature during anesthesia, the author states that an increase (positive Ipsen's anesthesia phenomenon) indicates a favorable prognosis. Deviations from the normal anesthesia reaction (negative Ipsen's anesthesia phenomenon) indicate an unfavorable prognosis.

Pancreatitis Following Operations on Biliary System.—It is pointed out by Popper that the pancreatitis which develops following interventions on the biliary system becomes manifest under various symptoms, none of which are sufficiently characteristic to permit a definite diagnosis. However, with the aid of systematic tests of the diastase content of the blood, it is possible to demonstrate a postoperative disturbance of the pancreas. Since the diastase values return to normal after a certain time, blood sugar tests should be made in order to determine the further course of the disease of the pancreas. If a pancreatic disorder exists, dietary as well as medicinal measures should be resorted to. Insulin should be given, but epinephrine and other medicaments that have a tendency to increase the blood sugar content should be avoided. Continuous drop infusion with sugar solutions is likewise inadvisable. The fact that, of five cases with postoperative pancreatitis, four had a fatal outcome indicates an unfavorable prognosis.

236: 169-268 (May 22) 1932

Autoplastic and Homoplastic Implantation of Epidermis. Loeffler.—p. 169.
*Osteitis Fibrosa and Sarcoma. W. Hoffmeister.—p. 191.
Criticism of Usual Methods of Surgical Reposition of Bone Fractures. H. May.—p. 213.
Surgical Treatment of Bone Fractures. E. W. Lexer.—p. 234.
Intravenous Pyelography. W. Hoffmeister.—p. 248.
Surgical Approach in Operations on Temporomaxillary Articulation and on Upper Portion of Ascending Ramus of Maxilla. G. Schmidt.—p. 260.

Osteitis Fibrosa and Sarcoma.—It is pointed out by Hoffmeister that in the treatment of osteitis fibrosa it is of greatest significance to consider whether an osteitis fibrosa may develop into a sarcoma, or whether the brown tumors belong in the group of sarcomas. By means of several case reports the author illustrates that the diagnosis osteitis fibrosa has to be made with great caution, for beginning sarcomas may, by changes in their surroundings, simulate osteitis fibrosa. The arrangement of the giant cells does not permit a differentiation between osteitis fibrosa and sarcoma. Roentgen and histologic examinations alone are not decisive. As long as there is no reliable method for the differentiation between malignant and benign changes in the bones, definite rules should be laid down for the surgical treatment. The osteitis fibrosa cystica heals most readily if all the diseased tissue is removed. Moreover, the complete removal of all diseased tissues prevents degeneration into a sarcoma. The following rules should be adhered to in the treatment of osteitis fibrosa, or of a beginning bone disease that resembles osteitis fibrosa: Small cysts should be chiseled out, down into the healthy tissue, and larger cysts should be resected and the resulting defect should be bridged by bone transplantation. If the process is an osteitis fibrosa without sarcomatous degeneration, the subperiosteal extirpation prevents relapse. On the other hand, if there is a sarcoma, the early resection provides the most favorable chances for recovery. The subperiosteal resection has no maiming effect, because the perisoteum regenerates the bone again. The resection can be employed also when the tumor has perforated the bone but has not yet affected the soft parts. If the operation reveals a perforation into the soft parts, the diagnosis sarcoma is established; and only in this case is a maiming operation, such as amputation or exarticulation, justified.

Klinische Wochenschrift, Berlin

11: 929-968 (May 28) 1932

Problem of Dementia. H. W. Gruhle.—p. 929.
*Studies on Postoperative Condition. W. Ewig and L. Klotz.—p. 932.
Determination of Antiprothrombin in Blood Serum. A. Fischer.—p. 936.
Observations on Normal Histology of Brain of Children, with Especial Consideration of Anatomic Changes in Brain of Children with Intestinal Intoxication (Exsiccosis). J. H. Globus, H. Schwarz and P. Gooler.—p. 937.
Hyperfunction of Parathyroids and Recklinghausen's Bone Disease. E. Toenniessen and H. von Hecker.—p. 940
Increase in Skin Wheals of Coloring Matter Circulating in Blood. D. Adlersberg and A. Perutz.—p. 942.
Cause of Change in Form of Automatic Ventricular Complexes in Complete Heart Block. D. Scherf and A. Schott.—p. 945.
Red Rays for Treatment of Profuse Genital Hemorrhages. H. Kustner.—p. 947.
Roentgen Picture of Skull in Increased Cerebral Pressure. I. Roth and R. Lemke—p. 949.
Acholuria Resulting from Renal Insufficiency in Patients with Icterus. G. Perémy.—p. 950.
Determination of Urea in Normal and Pathologic Eye Lenses of Animals. S. Nauen.—p. 952.

Studies on Postoperative Condition.—Ewig and Klotz, wishing to throw more light on the component factors of postoperative shock, made animal experiments with procedures that are also employed in studies on human subjects. They found that the four conditions that they selected for their studies, namely, central vasomotor paralysis, wound shock, intestinal shock and histamine shock, are conditions of true collapse. However, the pathogenesis of these conditions varies considerably, and consequently their treatment has to be different. The decrease in the amount of the circulating blood, the authors consider the cardinal symptom of collapse. In central nervous collapse it is due to the fact that large quantities of blood are retained in the periphery, but there also develop peculiar changes in the composition of the blood, which in the larger vessels lead to a considerable increase in the plasma, so that the hemoglobin and erythrocyte values decrease considerably. In the peripheral capillary blood, the conditions are reversed. In wound shock and intestinal shock, the decrease in the amount of the circulating blood is primarily due to loss of plasma, so that there is a considerable inspissation of the blood. Since the loss of plasma is mainly due to the escape of plasma in the injured vascular regions, local tissue changes at first predominate in these types of shock. In histamine shock, however, the conditions are more complicated, but they become likewise manifest in a considerable loss of plasma with the resulting inspissation of the blood. In histamine shock in dogs the liver as a storage organ plays an important part, not only in the sense of a filling with blood but also as a result of capillary endothelial injury by escape of plasma into the parenchyma. The latter process, however, involves several other organs. In addition to this there is also a loss of fluid in the stomach and intestine. In the central nervous shock, however, as well as in wound shock and in intestinal shock, a storage function of liver and spleen is not likely. Helpful for the clinical differentiation of various forms of collapse is not only the determination of the amount of the circulating blood, by either the dyestuff or the carbon dioxide methods, but also the determination of its hemoglobin content. Decrease in the amount of circulating blood, with considerable differences in the two methods of determination and decrease of hemoglobin content in arterial and venous blood, indicate central nervous collapse; but if the two test methods of the circulating quantity of blood give similar results and if in addition to this the blood is inspissated, the collapse is of peripheral origin.

11: 969-1008 (June 4) 1932

Physiology of Hypophysis with Relation to Its Diseases. T. J. Putnam.—p. 969.
Periodic Irregularities in Pulse During Abnormal (Cheyne-Stokes) and Normal Respiration. H. von Hoesslin.—p. 971.
*Treatment of Pernicious Anemia with Liver and Liver Extracts. F. Schlumm.—p. 975.
Point of Attack of Carbohydrates in Their Antiketogenic Action. A. Gottschalk.—p. 978.
Epileptic Attack and Neuromuscular Irritability. H. Altenburger and H. G. Wolff.—p. 980.
Treatment of Anemias by Means of Copper: Method for Quantitative Comparison of Antianemic Remedies and New Copper-Iron-Protein Preparation. H. Handovsky.—p. 981.
Behavior of Blood Sugar During Starvation. B. Slotopolsky.—p. 984.
*Accelerating Action of Parathyroid Hormone on Coagulation. G. F. Bume and E. Werber.—p. 988.
Magnesium Content of Blood, Particularly in Tetany. B. Sjollema and L. Seekles.—p. 989.
Nature and Biologic Action of Complex Salts of Alkaline Earth Metals. K. Mulli and F. Standenath.—p. 990.
Treatment of Benign Lymphogranuloma Inguinale. C. T. Nicolau.—p. 991.

Treatment of Pernicious Anemia with Liver and Liver Extracts.—Schlumm thinks that the advantages of parenteral liver therapy far outnumber its disadvantages and that it is superior to enteral therapy. He also suggests that cases that do not yield to enteral liver treatment may yet be saved by parenteral therapy. In comparing several liver extracts that have been used for injection he found that deproteinization reduces the efficacy of the extract considerably. The fact that comparatively small amounts of parenterally administered liver are just as effective as large amounts of enterally administered liver indicates that only a small quantity of the active principle passes the intestinal wall unchanged. This in turn speaks for a hormonal character of the active principle and against the theory that the liver becomes active by absorbing toxins. If the active substance really is hormonal the deficiency theory of pernicious anemia seems more probable, the more so because pernicious anemia seems to be related to other deficiency diseases, such as sprue, beriberi and pellagra.

Accelerating Action of Parathyroid Hormone on Coagulation.—Following investigations, Bume and Werber became convinced that, besides increasing the calcium content of the blood, the parathyroid hormone also effects an increase in the thrombokinase; they think that to this influence on the thrombokinase can be ascribed the superiority of the parathyroid hormone over calcium therapy in the treatment of hemoptysis.

Medizinische Klinik, Berlin

28: 777-812 (June 3) 1932

Clinical Significance of Research on Dysentery. Sartorius.—p. 777.
*Connection Between Rhinopathia Vasomotoria and Digestive Disturbances. D. Adlersberg and L. Forschner.—p. 779.
Essential and Symptomatic Agranulocytosis. E. Schilling.—p. 784.
Ovarian Tumors and Ovariotomy During Pregnancy. F. Schrenk.—p. 785.
Determination of Blood Groups in Paternity Lawsuits. A. M. Marx.—p. 787.
Percutaneous Arsenic Action with Arsenic Baths in Secondary Anemias. H. Frank.—p. 791.
Significance of Stasis Treatment in Surgery. E. Sehrt.—p. 792.
Whooping Cough a Disease Entity or Only a Symptom? W. Hildebrandt.—p. 793.
Thyrogenic Obesity as Result of Gunshot Wound of Neck? O. Oesterlen.—p. 795.

Rhinopathia Vasomotoria and Digestive Disturbances.—Adlersberg and Forschner show that the etiology of rhinopathia vasomotoria is not always the same. In the majority of cases it is of allergic origin, in a second group it is enterogenic, and the third form is closely connected with the internal secretions. In this paper the enterogenic form is discussed primarily. In a large rhinologic material the concurrence of typical rhinopathia vasomotoria with gastro-intestinal disturbances was observed in thirty-six patients. On the other hand, among a large number of patients with gastro-intestinal disorders, thirty-three were discovered in whom there also existed a rhinopathia vasomotoria. The enterogenic form of rhinopathia vasomotoria usually shows the following characteristics: (1) simultaneous existence of typical gastro-intestinal symptoms (usually chronic enteritis or colitis), (2) modification of nasal disorders by treatment of gastro-intestinal disturbances, and (3) absence of allergic symptoms (especially absence of eosinophilia in blood and tissues). The authors call attention to connections between rhinopathia vasomotoria and oxyuriasis, and to relations with incretory processes as well as to the influence of the intestine on the allergic form of rhinopathia vasomotoria.

Münchener medizinische Wochenschrift, Munich

79: 861-900 (May 27) 1932

*Therapy of Effusions and Vascular Disturbances in Extremities. F. Schede and E. Bettmann.—p. 861.
Treatment of Cystitis and of Acute and Chronic Cystopyelitis. Schottmüller.—p. 863.
Blood Pressure and Bronchial Asthma. M. J. Gutmann.—p. 864.
*Dietary Alteration in Infectious Diseases. K. Friedrich.—p. 866.
Therapy of Secondary Anemias in Nurslings and Small Children. Gertrude Redmann.—p. 868.
Gonorrheal Arthritis in Small Girls. H. Stephani.—p. 869.
Results of Immunization with Concentrated Diphtheria Ointment According to Lōwenstein.—p. 871.
Injuries of Fetus Caused by Chemical Contraceptives. G. Schwarz.—p. 872.
Dermatitis Bullosa Caused by Plant Poison. L. Haymann.—p. 874.

Therapy of Effusions and Vascular Disturbances in Extremities.—Schede and Bettman point out that circulatory disturbances of the extremities and chronic effusions of the knee joint are frequently refractory to treatment, particularly when the causes are not known. Yet it is important to remove the effusion before a flail knee or an arthrosis deformans develops; and chronic circulatory disturbances of the leg should at least be improved to such an extent that chronic indurations, ulcers and thrombophlebitic changes are avoided. The authors describe methods of mechanical treatment that are helpful in realizing these aims. The impaired circulation can be improved by rhythmic opening and closing of the arterial blood stream, by means of vascular massage or compression. Vascular massage is done by alternately inflating and deflating a rubber tube that is put around the thigh. This treatment influences not only the limited region but the entire peripheral vascular system. On the same principle of rhythmic compression are based the inflatable rubber stocking and the inflatable abdominal bandage, and they are used for the same purpose, namely, that of stimulating the circulation or, in the case of the abdominal bandage, for improving the thoracic respiration in patients with spondylosis. In addition to the vascular massage the authors recommend gymnastic exercises, hydrotherapeutic measures and medicinal treatments. In discussing gymnastics they mention bicycle exercises, various forms of knee bending, and turning in bed without using the arms. Hydrotherapeutic measures aim to improve the circulation by thermic stimulation, such by cold showers applied from the toes upward to the waist; also by alternating hot and cold foot baths and by subaqual massage. For the medicinal treatment the authors recommend measures that dilate the capillaries and the arteries.

Dietary Alteration in Infectious Diseases.—Friedrich shows that, by a sudden change in the diet, reactions may be produced in the course of infectious diseases, which, in persons with slight fever become manifest in a primary (not always recognizable) increase in temperature with subsequent decrease or only in a temporary decrease. The direction of the dietary change whether from acid to alkaline or in the reverse direction seems to be of slight significance; not the type but the suddenness and intensity of change is the decisive factor. Whereas the reactions that are produced by changes in the diet are almost the same in the various types of diet, the prolongation of a one-sided diet produces a characteristic action such as an increase in temperature by a diet inducing acidity, a decrease by a diet inducing alkalinity. Regular repetition of a change in diet in definite intervals is capable of influencing the course of infectious disease favorably, in that it has a defervescent effect. In patients with slight fever the author noted a favorable influence when the diet was changed after intervals of from one to two days. Less frequent changes were less effective. In patients with high fever the change should, if possible, be still more rapid. The author considers the change of diet as a promising method to influence patients with infectious and other diseases.

Zeitschrift für Tuberkulose, Leipzig

64: 399-478 (May) 1932

Robert Koch and Crusade Against Tuberculosis. F. A. Weber.—p. 399.
Beginning of Tuberculosis in Adults: Observations on Series of Roentgenograms. H. Braeuning.—p. 416.
Permanent Cure and Operability Following Thoracoplasty. A. Heymer and W. Thaler.—p. 427.
Cavern Formation in Lung in Atypical Pulmonary and Osseous Lymphogranulomatosis. H. Lichtenstein.—p. 429.
*Influence of Extirpation of Spleen and of Blockage of Reticulo-Endothelial System on Course of Tuberculosis. I. M. Subin.—p. 436.
Experiences with Complement Fixation Reaction According to Neuberg-Klopstock. W. Hünigen.—p. 447.

Extirpation of Spleen and Blockage of Reticulo-Endothelial System in Experimental Tuberculosis.—Owing to the fact that administration of spleen preparations have proved of favorable influence on tuberculosis in guinea-pigs, and because the action mechanism of this spleen therapy has not been understood as yet, Subin decided to approach the problem of the rôle of the spleen in tuberculosis from a different angle, namely, by subjecting tuberculous rabbits to splenectomy, and also by blockage of the reticulo-endothelial system with colloidal dyestuffs. It was found that splenectomy has an unfavorable influence on the course of tuberculosis, for the rabbits subjected to it showed more extensive tuberculous processes of a primarily exudative character than those that were not splenectomized. However, the blockage of the reticulo-endothelial system had the opposite effect of what was expected in view of the effect of the splenectomy, for in splenectomized animals in which the reticulo-endothelial system was blocked for a prolonged period the tuberculous lesions were much less severe than in the animals in which only splenectomy was performed. The author thinks that this favorable effect of blockage is due to the fact that it does not injure the reticulo-endothelial system but, on the contrary, that the dye-stuff has a stimulating effect.

Zentralblatt für Chirurgie, Leipzig

59: 1409-1456 (June 4) 1932

Historical Data on the Author of the "Fieldbook of Wound Medicine" of 1517. K. Sudhoff.—p. 1410.
**Treatment of Intestinal Paresis by Means of Infusions of Hypertonic Solutions of Sodium Chloride.* W. Keusenhoff.—p. 1411.
Observations on Urethrovenous Passage of Contrast Medium in Urethrography. A. Hendriock.—p. 1415.
Perforated Liver Cyst Simulating Perforated Gastric Ulcer. W. Rieder.—p. 1423.
Treatment of Acromioclavicular Dislocation. H. Mannheim.—p. 1424.
Technic of and Indications for Nitrous Oxide-Oxygen Anesthesia. R. Goldhahn.—p. 1426.
Unusual Uterine Hemorrhages and Their Prevention. H. Walawelski.—p. 1429.
Rupture of Axillary Artery in Shoulder Luxation. H. Schirmer.—p. 1433.

Treatment of Intestinal Paresis by Means of Infusions of Hypertonic Sodium Chloride Solutions.—Keusenhoff considers as particularly valuable a method that has been recommended by French authors, who were able to counteract postoperative paralytic ileus by intravenous injection of 15 cc. of a 20 per cent solution of sodium chloride. The infusion not only effects a contraction of the smooth muscles but also aids in the elimination of the toxic substances that have accumulated in the tissues. The author employed this method in a number of cases of intestinal paresis that developed following laparotomy. When after thirty-six hours the usual procedures do not succeed in stimulating the inactive intestine, from 10 to 20 cc. of a 10 per cent solution of sodium chloride is injected. Care should be taken that the injection is not made paravenously, which would lead to painful infiltration. In mild cases the effect is usually prompt; if it is retarded, from 125 to 150 cc. of a 20 per cent solution of sodium chloride is given by rectum. The treatment with sodium chloride solution also proved helpful in ileus-like conditions that develop in diseases of the uropoietic system. He illustrates this with two case reports. In cases of intestinal paresis that have an organic cause, the described treatment is of course without effect; in instances in which the diagnosis is uncertain, it is advisable to give the injection of the hypertonic sodium chloride solution only in the clinic, so that no time is lost if a surgical intervention becomes necessary.

Zentralblatt für Gynäkologie, Leipzig

56: 1377-1440 (June 4) 1932

*Erythrocyte Sedimentation Speed and Leukocytes. F. Heimann.—p. 1378.
Roentgenologic Control of Madlener's Sterilization. H. Wolf.—p. 1383.
Problem of Cesarean Section. E. Preissecker.—p. 1387.
Obstetric Significance of Congenital Tumors of Sacrum. W. Spitzer.—p. 1403.
*Conservation of Genital Function Following Irradiation for Uterine Carcinoma. E. Philipp.—p. 1409.
Use of Dactyloscopy for Identification of Infants in Obstetric Clinics. B. Bergglas.—p. 1412.
Experimental Studies on Missed Abortion. W. K. Tschaikowsky.—p. 1414.

Erythrocyte Sedimentation Speed and Leukocytes.—Heimann thinks that it is now a matter of course to determine in clinical patients not only the erythrocyte sedimentation speed but also the leukocyte picture. After mentioning the numerous factors that have to be considered in determining the sedimentation speed of erythrocytes, he discusses the leukocytic hemogram and the number of leukocytes. He emphasizes that in sedimentation as well as in the leukocytic hemogram a single examination is not sufficient but that the tests have to be repeated from time to time. The sedimentation and the leukocytic blood picture frequently show in the beginning a contradictory behavior; for instance, the sedimentation is rapid and thus characteristic for an acute inflammation, whereas the leukocyte count, which in an acute inflammation would be expected to be high, is extraordinarily low. This observation induced the author to watch for it in his studies on fifty patients with gynecologic disorders. He describes only a few of the cases examined, but these indicate what he observed in the large number; namely, that the sedimentation speed, the number of leukocytes and the leukocytic hemogram, when they are studied alone, give only an unclear picture of the processes in the organism and are not an entirely reliable basis for the prognosis. However, the comparison of the three tests gives valuable information about the prognosis, or whether an operative intervention is necessary or not.

Conservation of Genital Function Following Irradiation for Uterine Carcinoma.—It is pointed out by Philipp that irradiation of genital carcinomas usually results in functional exclusion of the ovaries and of the uterus. This applies to roentgen rays as well as to radium rays. In the case of roentgen rays this is understandable since the carcinoma dose is several times as large as the castration dose, but this is not equally true of radium, since the effective rays of radium are less far-reaching; but even here the dose that heals the carcinoma is generally sufficient to exclude the ovarian function, for nearly all patients who were treated with radium became amenorrheal and remained so. Patients in whom menstruation persists following radium irradiation are exceptions. Among 250 women with genital carcinoma who were cured by irradiation, there were only two who subsequently became pregnant and in two others menstruation persisted. In trying to explain this conservation of function, the author points out that it may be due to the fact that the ovaries were too far away from the radium so that its rays were not sufficiently strong to impair the function, or the dosage may be of influence.

Sovetskiy Vestnik Oftalmologii, Moscow

1: 121-173, 1932. Partial Index

*Experimental Study of Cataract. A. M. Rodigin.—p. 121.
Accidents to Eye While Working with Emery Stone. D. A. Sivtsev.—p. 141.
Light Filters in Protecting Eyes During Electrowelding. A. F. Tomilova.—p. 144.
Pathologic Anatomy of Bandform Degeneration of Cornea. N. I. Shikhinashvili.—p. 147
Prismoptometry for Recognition of Simulated Weakness of Vision. N. I. Bogoroditskiy.—p. 151.
Cysticercus in Region of Macula Lutea. L. B. Amstislevskiy.—p. 154.
Sapejko-van Millingen's Operation for Trichiasis. R. S. Rameev.—p. 158.
Lagley's Operation for Trachomatous Entropion. K. I. Khavanskiy.—p. 159.

Experimental Study of Cataract.—Using rabbits as experimental animals, Rodigin studied the composition, cytology, proteolytic and amylolytic ferments and the histology of the *aqueous humor of the anterior chamber of a normal eye and* an eye with experimental cataract. His conclusions are as follows: During the resolution of cataracts experimentally produced by intracapsular injection of 8 per cent solution of magnesium chloride, there is a change in the morphology of the aqueous humor with a predominance of lymphocytes and phagocytosis with inclusion of masses of the crystalline lens. When the absorbing process ceases, the morphologic picture of the aqueous humor becomes almost normal. Besides the morphologic changes there is also an increase in the proteolytic and amylolytic ferments. Under normal conditions the aqueous humor possesses an index of 8.3 for protease at 14 C. and 12.5 for protease at 38 C. and an index of 20 for diastase; whereas, in the presence of a swelling and a resolving cataract, both ferments increase and the index becomes 50 for protease and 80 for diastase. Stabilization of the cataract leads to a decrease in ferments with a disappearance of cellular elements. These results agree with the pathologico-anatomic observations. During resolution of the cataract, the cellular elements appear also in the posterior chamber and in various regions of the crystalline lens. The intra-ocular flow is toward the ciliary process and the phagocytosis is demonstrated during the passage of the crystalline substance to the ciliary process. The author does not believe that the changes occurring in the rabbit's eye can be compared in toto to the human eye, but analogies can nevertheless be drawn.

Hospitalstidende, Copenhagen

75: 633-676 (May 5) 1932

*Course of Complement Binding in Gonorrheal Infection in Women. V. Genner, K. Antons and H. Boas.—p. 633.
Vitamin E and Vitamin E Therapy in Animals and Man. P. Voght-Møller.—p. 663.

Complement Binding in Gonorrheal Infection in Women.—Genner and his associates found a much less marked complement binding reaction in women with gonorrhea in whom the infection was limited to the cervical canal than in those in whom the oviducts also were affected, the difference being so considerable that a marked reaction, they say, may justifiably, in spite of the absence of clinical symptoms, be regarded as pointing to disease of the oviducts, and the more protracted the reaction, the more justifiable is this point of view. A persistent marked and positive complement binding reaction is due to latent foci, and the adnexa probably afford far better conditions for a retained inflammatory process than do the endometrium and cervical canal.

Svenska Läkaresällskapets Handlingar, Stockholm

58: 77-152, 1932

*Conditions of Immunity with Reference to Brucella Abortus. G. Rundberg.—p. 77.

Conditions of Immunity with Reference to Brucella Abortus.—Rundberg found that Brucella abortus in all respects resembles a bacterium sensitive to B lysin. Immune serums in vivo showed no absolutely definite protective action against a fatal dose of Brucella abortus. Of leukocytes, lymphocytes, thrombocytes and histocytes, experiments in vitro show bactericidal action only on the part of the leukocyte and thrombocyte extracts, more pronounced on the part of the leukocyte. In experiments on the protective action of leukocytes in vivo, the leukocytes together with immune serums seemed in some cases to exert a definite, not always complete protective action.

Ugeskrift for Læger, Copenhagen

94: 529-558 (May 26) 1932

Pulmonary Abscess. H. Abrahamsen.—p. 529.
*Basis for Operative Treatment of Cryptorchidism. H. Bjerre.—p. 534.

Basis for Operative Treatment of Cryptorchidism.—Bjerre says that cryptorchidism, if continued, causes sterility and often leads to complications in the groin; clinical examinations show apparently normal development of the testes in a considerable number of cases after operation, and in the great majority of the remaining cases they are uninjured by the intervention. Since the changes in the parenchyma, as established by histologic investigations, do not begin until puberty and since spontaneous recovery may occur in childhood, the *preferred time for operative treatment of cryptorchidism is late* childhood, unless complications indicate earlier treatment.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 99, NO. 9 CHICAGO, ILLINOIS AUGUST 27, 1932

THE CRISIS IN PSYCHIATRIC EDUCATION

CHAIRMAN'S ADDRESS

FRANKLIN G. EBAUGH, M.D.
DENVER

During the past year I have had the privilege of conducting an inventory and appraisal of psychiatric teaching facilities as a part of the activities of the Division of Psychiatric Education of the National Committee for Mental Hygiene.[1] This work was planned under the direction of an outstanding advisory committee, of which Adolf Meyer is chairman. It is based on actual visits to each school which covered a study of the facilities for psychiatric teaching, with interviews with the teaching staff in psychiatry, the deans and administrative officers, professors of medicine and professors of pediatrics. Additional information showing the attitudes of students and recent graduates has likewise been obtained from many schools. I should like to present a part of the factual data accumulated to date and summarized for the first sixty schools visited. These data, although discouraging in some respects, show that psychiatric education is rapidly developing in this country and that representatives of all the fields of medicine are cognizant of the problems of psychiatric education and of the importance of meeting the ideal of medical education, which should be to graduate students capable of intelligently practicing medicine.

The word "crisis" comes from the Greek word meaning "to separate." It also is used commonly to mean an important or crucial point. In medicine it is used to mean that change in a disease which indicates whether the result is to be recovery or death. Fortunately, psychiatric teaching is not in this position, but it seems to me that the word "crisis" could be used to indicate the crucial point that now confronts the teaching of psychiatry, as at the present time many noteworthy and significant changes are being developed which indicate a departure from the past standards in which a majority of the medical schools paid little attention to the teaching of psychiatry, usually presenting this work during the latter part of the senior year when the students are often not interested and have not been prepared to see the significance of the work as a part of their fundamental preparation for all medicine. The courses given in the past have usually been isolated from the other fields of medicine or consisted of a one day visit to a state hospital or institution for the feebleminded, along with a square meal and a vaudeville show for the students.

It was of great interest to me to know that the chairman's address before this section in 1914 was entitled "Some Factors Tending Toward Adequate Instruction in Nervous and Mental Diseases."[2] Dr Graves, in his address, spoke of a standard medical curriculum allotting one hundred and fifty hours in the clinical years to neurology and psychiatry; sixty hours in the third year to neurology, and ninety hours in the fourth year, of which fifteen hours were devoted to clinical conferences and fifteen hours to didactic lectures in psychiatry. In practically all schools at that time neurology and psychiatry were combined in one department and in approximately one half of these schools this combined department was independent of medicine. In the study made by Dr. Graves of the curriculum of eight-five schools, he stated:

> The tabulation shows specific defects in the following particulars: first, that 5 out of 85 schools give no instruction whatever in either neurology or psychiatry; second, that as far as can be determined from the catalogs, neurology and psychiatry are combined in instruction under the collective terms "nervous and mental diseases" in 25 of the remaining 80 schools; third, that of the 55 schools teaching neurology and psychiatry in separate courses in both third and fourth years, 27 . . . give a place to neurology and only 2 to psychiatry; fourth, that whereas in these 55 schools 32 teach neurology, only 2 teach psychiatry in the third year; yet in the fourth year 47 teach neurology and 42 teach psychiatry; fifth, that the average total hours allotted to the department of nervous and mental diseases in the schools of each class is much less than the total hours recommended in the standard curriculum.

THE PSYCHIATRIC CURRICULUM

The general situation in psychiatric education in 1932 is quite different and may be summarized as follows:

An analysis of the psychiatric curriculum in the sixty schools visited is of interest. Psychiatry functioned as a separate department in nineteen schools, as a department combined with neurology in fifteen schools and as a subdepartment of medicine in twenty-five schools.

In contrast with the former tendency to present psychiatry chiefly during the senior year, at the present time twenty-eight schools are engaged in teaching psychiatry during the preclinical years; thirty-one limit it to the clinical years, of which eleven schools present psychiatry during the fourth year only. One school limits its psychiatric teaching entirely to the third year.

Read before the Section on Nervous and Mental Diseases at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

[1] Dr. C. M. Hincks, general director of the National Committee for Mental Hygiene, and Dr. Ralph A. Noble, director of the Division of Psychiatric Education, allowed me to use this material.

[2] Graves, W. W.: Some Factors Tending Toward Adequate Instruction in Nervous and Mental Diseases, J. A. M. A. 63: 1707-1711 (Nov. 14) 1914.

and one school does not offer it at all. Elective work is offered in seventeen schools. The total hours devoted to the teaching of psychiatry were four thousand one hundred and thirty-seven; the average hours devoted to the teaching of psychiatry in each school were sixty-eight and eight-tenths. The variation in the number of hours was from a maximum of two hundred hours to a minimum of sixteen hours.

These findings and contrasts with those reported by the chairman of this section in 1914 indicate clearly a crucial turning point in psychiatric education. For instance, the majority of schools then presented psychiatry during the fourth year only, but many are now teaching psychiatry during the preclinical years. Graduate and elective work were universally neglected in 1914. The content of the psychiatric curriculum is of interest. In the teaching reported during the preclinical years, eleven schools are now presenting courses in psychobiology. Psychobiology is defined by Meyer as: "a science of personality-formation and personality-function, objective and yet reflecting all of man's subjectivity, keeping close to a common ground of generally accessible facts and concepts. Using a pluralistic natural history formation and making the necessary realignment of the sciences, psychobiology aims to bring together the physician and all those who work with human beings and to effect a division of labor in harmony with the concept of integration, with interpenetration rather than overspecialization." These courses are usually given during the first year. Eleven schools give courses in medical psychology which serve as an introduction to the clinical years, and fifteen schools give introductory courses in psychopathology. In 1932 the tendency in the teaching of psychiatry during the clinical years is to do away with didactic instruction, replacing it with teaching by clinics and clerkships and outpatient work. A discussion of the psychiatric curriculum will be presented later.

ANALYSIS OF CLINICAL FACILITIES FOR PSYCHIATRIC TEACHING

During the past decade better facilities have developed for psychiatric teaching. For instance, at the present time there are twelve psychopathic hospitals or institutes utilized by eighteen schools for teaching. These hospitals are well equipped for the teaching of psychiatry, with excellent ward facilities for the proper care of the patient, centering around a complete staff, adequate nursing and hydrotherapeutic facilities, occupational therapy and consultation and social service and outpatient facilities, including clinics for children. One is pleased to note that seventeen state hospitals are utilized for teaching. Psychopathic wards, frequently inadequate, are utilized for teaching in eighteen schools. Outpatient departments are available and utilized for teaching in forty of the sixty schools studied. In approximately one half of these schools, however, these facilities were considered inadequate for teaching. The outpatient departments were not available or utilized in the remaining twenty schools. It is also of interest to note that an excellent psychopathic ward of the United States Penitentiary at Atlanta, Ga., is used for teaching as well as two Veterans' Bureau hospitals. In many instances psychiatric facilities have been made available during the past two or three years, and since 1930 five medical centers have developed complete facilities for psychiatric teaching and research. In teaching schedules the past few years have seen the development of psychiatric clerkships and a gradual development of outpatient teaching. It is of interest to note that seven medical schools require a residence of from one to two weeks in a state hospital. This is a pleasing development in psychiatric education, as it enables the student to familiarize himself before graduation with the many problems offered by a state hospital and so to develop a sympathetic attitude. This teaching should, of course, be complemented by preclinical teaching.

It is obviously important for students to come in contact with the many clinical problems found in state hospitals. Many of these hospitals now have excellent reception services that are far superior to those the universities have to offer. I hope that in the future state hospitals will be used more for teaching. Students should be given regular summer assignments to those hospitals. No teaching organization should overlook the state hospitals.

The total budget for the teaching of psychiatry in the sixty schools is $360,000, and twenty-three of these operate on a full-time or part-time basis. Of this group, there were only seventeen operating on a full-time basis.

Interviews with professors of psychiatry in terms of their objectives of teaching may be stated as follows:

Aside from the necessity of giving the student the basis for recognition of the main reaction types, the major trend in teaching is the effort to prepare the student for the psychiatric conditions commonly encountered in general practice. As a corollary to this is stressed the importance of early recognition of mental illness and the principles of mental hygiene. So-called preventive measures are widely taught. From this broad basis there are many departures into progressive teaching, such as preclinical instruction in psychobiology and psychopathology (twenty-seven schools), both of which aim to ground the student soundly in the psychology of personality in health and in disease; advanced courses (frequently elective) to meet the needs of the student with special interest; special attention to the psychoneuroses, and the recognition of the need for better training of psychiatrists. On the red side of the ledger is the frank admission of no "real attempt to teach psychiatry" in one school, while in another the aim is solely to enable the student to pass state board examinations. Several schools continue to labor under the influence of the organicists to the exclusion of the modern psychiatric thought and a few more limit teaching to the barest outline of the classic types. These are in line perhaps more with contemporary legal formulas than with scientific progress. However, it was interesting to note that in the interviews with those held responsible for the teaching of psychiatry the predominant point of view may be described as genetic-dynamic, in which mental disorders are considered to result from the gradual accumulation of unhealthy reaction tendencies to life's situations. A genetic-dynamic study, therefore, means the study of all previous experiences of the patient, the total biography of the subject and the forces he may be reacting to, whether physical, organic, psychogenic or constitutional. The emphasis is placed on mechanisms and forces at work instead of on diseases by this group of psychiatrists, which is in contrast to the kraepelinian type of psychiatry based on classifications, profuse descriptions of symptoms and disease entities.

In discussions with the professors of psychiatry in various schools, the following trends for future psychiatric teaching were noted:

1. Establishment of psychiatric hospital units in general hospitals.
2. Establishment of separate departments of psychiatry, adequately budgeted.
3. Establishment of a full-time or part-time teaching personnel.
4. Integration of psychiatry with other medical teaching.
5. Increase in number of curriculum hours with introduction of preclinical subjects such as psychobiology, psychopathology, etc.
6. Better utilization of outpatient facilities and the establishment of psychiatric clerkships.
7. Establishment of child guidance clinics in conjunction with teaching hospitals and their utilization in the teaching program.
8. Establishment of extramural psychiatric clinics and community programs.

Interviews with the deans of the schools visited may be summarized as follows:

Deans having a sympathetic attitude, fifty-four.

Deans having an unsympathetic attitude, six.

Criticisms of psychiatry (listed in order of frequency): lack of integration, isolation; inadequate personnel; varying terminology; inexactness; therapeutic inefficiency.

"I think it (psychiatry) is a most important clinical subject today. You can't train any physician for medicine unless he has some fundamental understanding of the personality approach to the patient."

This summary emphasizes the characteristic complaint that psychiatry has been too isolated from the other divisions of the medical curriculum according to the comments of the majority of the deans who have been interviewed.

The attitudes of the professors of medicine, as follows, indicate a similar trend, with marked emphasis on the frequency of the psychoneuroses and difficulties in establishing satisfactory treatment of this group:

Uniform interest in psychiatry.

An estimate as to the incidence of psychiatric problems ran from 2 to 75 per cent, with a median of 35 per cent.

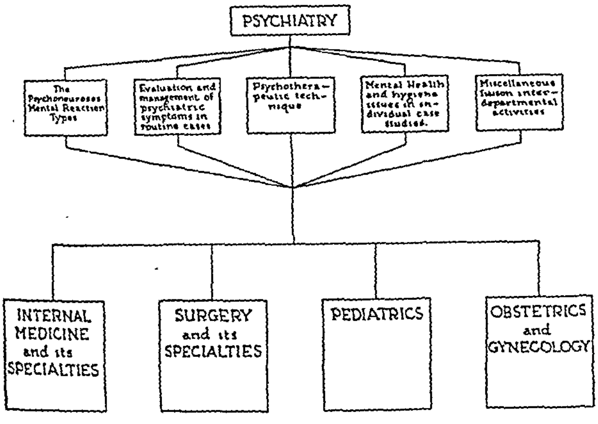

PSYCHIATRY
The Psychoneuroses Mental Reaction Types
Evaluation and management of psychiatric symptoms in routine cases
Psychotherapeutic technique
Mental Health and hygiene issues in individual case studies.
Miscellaneous fusion interdepartmental activities
INTERNAL MEDICINE and its SPECIALTIES
SURGERY and its SPECIALTIES
PEDIATRICS
OBSTETRICS and GYNECOLOGY

Chart 1.—Proposed functional relationships of psychiatry and integration with major divisions of the medical curriculum.

Chief criticisms (listed in order of frequency): isolation, lack of integration; inadequate personnel; varying terminology.

"It seems to me that adequate psychiatric teaching is the biggest reconstruction that can occur in present-day medicine."

Likewise, the attitudes of the professors of pediatrics interviewed in these schools indicate an awakening of interest in problems of behavior which cannot help but be significant in improving the work in all fields:

Uniform interest in psychiatry as it pertains to their own field.

Incidence figures as to psychiatric cases in pediatrics run from 10 to 70 per cent, with a median figure of 30 per cent.

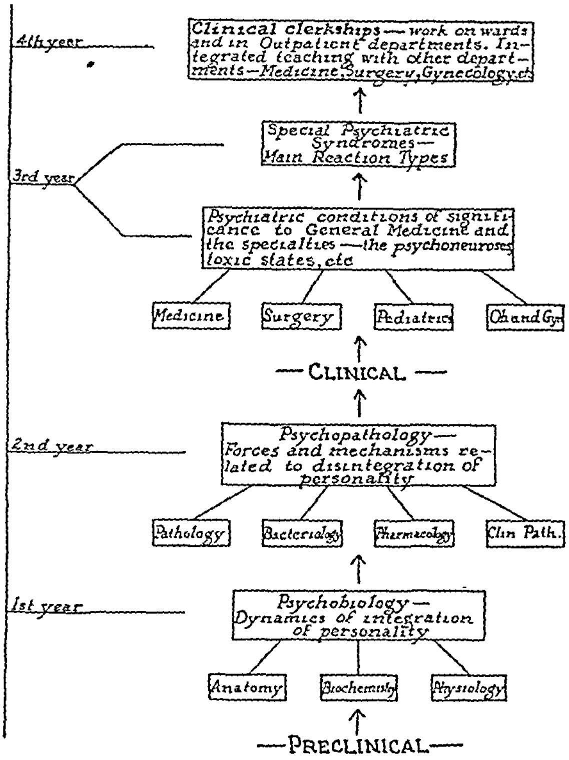

4th year
Clinical clerkships—work on wards and in Outpatient departments. Integrated teaching with other departments—Medicine, Surgery, Gynecology, etc
Special Psychiatric Syndromes—Main Reaction Types
3rd year
Psychiatric conditions of significance to General Medicine and the specialties—the psychoneuroses toxic states, etc
Medicine
Surgery
Pediatrics
Ob and Gyn
—CLINICAL—
2nd year
Psychopathology—Forces and mechanisms related to disintegration of personality
Pathology
Bacteriology
Pharmacology
Clin Path.
1st year
Psychobiology—Dynamics of integration of personality
Anatomy
Biochemistry
Physiology
—PRECLINICAL—

Chart 2.—Proposed outline for psychiatric teaching.

Chief criticisms (listed in order of frequency): inadequately trained personnel; lay workers in field of child guidance and mental hygiene; variation and obscurity in psychiatric nomenclature; isolation, particularly of child guidance clinics.

The majority (two thirds of those interviewed) feel that child guidance clinics should be associated with teaching hospitals and should be the joint responsibility of pediatrician and psychiatrist. One third feel that child guidance should be the province solely of the pediatrician.

One notes the reasonable criticisms regarding the frequent lack of adequate training of the personnel in psychiatry. The main problem of psychiatric education is to attract more men into this interesting field and to see that they acquire proper training. The requirements for postgraduate training should be most carefully considered, and at least five years should be spent in psychiatry following the preparatory rotating intern period. This five year period of training can be made possible through fellowships and should include all divisions of psychiatry, especially child psychiatry. In the visits made to the various schools the need for trained personnel was found to be very great in many centers, both to augment the teaching staff and for hospital and private work. The situation that now confronts psychiatry in the lack of personnel in this field is similar to that which confronted pediatrics a decade ago. We hope that our field will solve this problem as well as it was solved by the pediatric group.

The foregoing factual data centering around the attitudes of the professors of psychiatry and members of the teaching staff, the deans, professors of medicine and professors of pediatrics, indicate to me that there are two distinct phases of psychiatric teaching, undergraduate teaching and postgraduate training for the specialty of psychiatry. By far the more important of these is the first, and psychiatry is therefore not to be looked on merely as a specialty but as a part of the fundamental training of every medical man. Those outside of the field who have given considerable thought to these problems feel that the effectiveness of psychiatry has been injured by its isolation. In many respects we ourselves have been responsible for this isolation.

Chart 1 indicates to me possible measures for the integration of psychiatry in relation to the four major divisions of the medical curriculum.

It is to be seen in chart 1 that the first four topics are clinical, and the fifth topic, interdepartmental and liaison activities, is administrative and calls for combined clinics with each field. These combined clinics mean not only a breaking down of the isolation and of greater integration with psychiatry, but also a getting-together principle which should react well to both fields, especially in terms of establishing the treatment of the whole patient. Through such an integration of psychiatry with the other four fields we can expect the future internist, the surgeon, the obstetrician and the pediatrician to have a reasonable understanding of mental reaction types, especially the psychoneuroses, and to be able to evaluate mental symptoms (to the extent of at least recognizing the early stages of a delirious reaction and avoiding excessive use of sedatives). Mental hygiene and mental health issues must always be considered by the adequately trained physician in all fields.

Chronological Table of the Development of Psychiatric Teaching in the United States

The Past		*The Present Crisis*	*The Future*
Up to *1918*	From *1918* to *1930*	From *1931* to *1932*	
Psychiatry in Isolation	The Break-Down of Isolation		The Completion of the Integrating Program
1 Teaching largely in terms of the insanities 2 Teaching didactic, descriptive, limited to clinical years 3 Mental hospitals separated from the universities 4 Growth of asylums and the custodial idea 5 Inadequate teaching personnel 6 Nihilistic attitudes regarding therapy 7. Dominance of organic point of view 8 Lack of interest from students and faculties	1 Emphasis on psychiatry as a fundamental part of general medical training 2. Introduction of psychiatry into the preclinical curriculum 3 The acceptance of genetic dynamic principles 4 Greater interest in the preventive idea mental hygiene, child guidance, community programs 5 Emphasis on psychotherapy, psychodynamics, break down of therapeutic nihilism 6 Growth of integrative idea, correlating psychiatry with other divisions of medical teaching 7 Development of clinical research 8 Development of trained personnel 9 Growing interest on part of students	Period of Inventory and Reorganization The development of adequate teaching requirements for the fundamental training of all physicians and the organization of scientific and economical means of meeting the medical, social and individual problems of mental illness	1. Complete integration under the same roof psychiatric beds in the general hospital 2. Psychiatric principles applied to the management of the sick under the total personality concept 3. The development of liaison activities with other departments of medical teaching 4. The development of psychotherapeutic clinics and institutes of research in the universities ' 5 Establishment of full time or part-time teaching personnel 6. Closer integration with public health and preventive medicine 7. Establishment of behavior clinics in close correlation with teaching hospitals and the departments of pediatrics 8 Establishment of extramural clinics and community programs for the care of the mentally ill 9. Elimination of the custodial hospitals as isolated units 10. Establishment of requirements for the specialty of psychiatry through a board of qualified examiners approved by the American Psychiatric Association and organized by the National Board of Medical Examiners

In terms of furthering this essential integration with psychiatry I should like to propose a provisional curriculum that emphasizes the importance of presenting psychiatry during each of the four years of medicine with special emphasis on the psychoneuroses (the minor psychoses) (chart 2).

The facts that every medical man should know regarding the major psychoses are to be presented, although detailed psychopathologic studies are not considered necessary here since they are a fundamental part of postgraduate training. It will be seen in the proposed outline that practically all of the preclinical work constitutes what is necessary for further training in psychiatry as well as what is equally necessary as a part of the training for all medicine. This scheme is not presented in terms of number of hours, although for purposes of orientation they have been inserted. It does not call for additions to the total curriculum as much as a redistribution of hours, and other departments have often expressed a willingness to give up hours to psychiatry. I would deplore very much any efforts for standardization of a psychiatric curriculum. The number of hours is of little importance compared to the training of the teacher, the methods and content of teaching and the clinical facilities available for individual case study by the student.

COMPARISON OF REACTIONS OF STUDENTS WITH REACTIONS OF RECENT GRADUATES

As a part of this study and inventory of present-day psychiatric education the following summary has been prepared contrasting the attitudes of 800 undergraduates with 152 recent graduates, chiefly comprising the present intern and resident group:

Summary on Eight Hundred Undergraduates.—The following questions and answers were given:

1. Do you feel interested in the applications of psychiatry to general medicine? Indicate reasons for your interest

Yes, 756 or 94.25 per cent. No, 44 or 5.75 per cent.

2. Has your *instruction* in psychiatry been a material factor in this interest? (*a*) Slight? (*b*) Moderate? (*c*) Large? If so, in what manner?

(*a*) 176 or 22 per cent. (*b*) 376 or 47 per cent. (*c*) 248 or 31 per cent.

3. Do you feel that you understand what is meant by psychotherapy, so that you could use its principles in the treatment of patients? (*a*) No, or very little? (*b*) With reasonable chance of benefit? (*c*) With considerable confidence?

(*a*) 308 or 38 5 per cent. (*b*) 444 or 55.5 per cent. (*c*) 48 or 6 per cent.

4. Do you feel that your psychiatric instruction has given you adequate practical knowledge of the psychoneuroses, their genesis, prevention and treatment? (*a*) Insufficient? (*b*) Reasonably sufficient? Indicate any material deficiencies.

(*a*) 320 or 40 per cent. (*b*) 480 or 60 per cent.

5. Do you feel that you understand the principles involved in mental hygiene, from the point of view of their practical application? If so, to what extent? (*a*) No, or very little? (*b*) With reasonable understanding? (*c*) With special interest?

(*a*) 288 or 36 per cent. (*b*) 472 or 59 per cent. (*c*) 40 or 5 per cent.

Summary on One Hundred and Fifty-Two Graduates.—The following questions and answers were given:

1. Do you feel interested in the applications of psychiatry to general medicine? Indicate reasons for your interest.

Yes, 147 or 97 per cent. No, 5 or 3 per cent.

2. Has your *instruction* in psychiatry been a material factor in this interest? (*a*) Slight? (*b*) Moderate? (*c*) Large? If so, in what manner?

(*a*) 63 or 41.5 per cent. (*b*) 63 or 41.5 per cent. (*c*) 26 or 17 per cent.

3. Do you feel that you understand what is meant by psychotherapy, so that you could use its principles in the treatment of patients? (*a*) No, or very little? (*b*) With reasonable chance of benefit? (*c*) With considerable confidence?

(*a*) 69 or 45 per cent. (*b*) 77 or 50 per cent. (*c*) 6 or 5 per cent.

4. Do you feel that your psychiatric instruction has given you adequate practical knowledge of the psychoneuroses, their genesis, prevention and treatment? (*a*) Insufficient? (*b*) Reasonably sufficient? Indicate any material deficiencies.

(*a*) 87 or 57 per cent. (*b*) 65 or 43 per cent.

5. Do you feel that you understand the principles involved in mental hygiene, from the point of view of their practical application? If so, to what extent? (*a*) No, or very little? (*b*) With reasonable understanding? (*c*) With special interest?

(*a*) 69 or 45 per cent. (*b*) 78 or 51 per cent. (*c*) 6 or 4 per cent.

In general, it may be said that there is a frequent correlation between the answers to questionnaires and the evaluations as to teaching adequacy made in this report. One school, in which there is admittedly no real attempt to teach psychiatry, demonstrates this very well in that only four of twenty-nine students thought their teaching in psychiatry adequate.

On the whole, the questionnaires have been well received, and many interesting comments have been received from students. The interest in psychiatry is quite uniform, but there is great variation in answers to questions grouped under 3 and 5. One student from Yale thought the questionnaire ridiculous. Perhaps the most significant figure obtained is in group 4, in which 40 per cent of the students considered their psychiatric training insufficient to their needs.

OPINION CONCERNING APPRAISAL OF SCHOOLS VISITED

In terms of an inventory and appraisal of the sixty schools visited to date, sixteen were considered to offer adequate teaching in psychiatry. This tentative appraisal was made on the basis indicated, that is, the teaching personnel, the method and content of psychiatric teaching and the clinical facilities available. It is quite encouraging to realize that in ten of the remaining schools one would estimate that adequate teaching will develop rapidly in the immediate future. In fact, during the year of this study one school has established adequate teaching, although the course was definitely inadequate during the previous school year.

GENERAL COMMENT

In a limited presentation of this type one is forced to pick out the outstanding factual material concerning psychiatric education. It is not possible to give in detail a description of the content of the teaching curriculum or to report on characteristic local set-ups and situations in psychiatry which must always be carefully evaluated.

There is a challenge given to all medicine in the present situation. We have certainly reached a crisis in psychiatric education, which in terms of chronological relationship, beginning with the revival of interest in psychiatry during the war, may be illustrated by the accompanying table.

This crisis in psychiatric education is a part of the general crisis in medicine today, in which we all recognize changing attitudes of the relation of the physician to society. In these changing attitudes the public demands a greater recognition of the important part social forces play in the activities of the individual as well as continued scientific achievement in preventive medicine. Mental hygiene may be considered a very important part of preventive medicine. The way we meet this crisis in psychiatric education and the part that psychiatry will play in the development of medicine in the future will decide the degree of social usefulness and therapeutic efficiency of the physician in general. The contributions of psychiatry, like those of preventive medicine, should soak through the whole curriculum. This will mean a type of training that will result in the treatment of the total patient by graduates of medical schools. This total patient has a mind as well as a body. "Mind is the human being in action," and this action is spoken of as behavior, which is just as important a part of the clinical study of a patient as the understanding of physical problems, and the two cannot be separated.

MEDICAL TEACHING IN TUBERCULOSIS

BENJAMIN GOLDBERG, M.D.
Associate Professor of Medicine, University of Illinois College of Medicine
CHICAGO

AND

JESSAMINE S WHITNEY
Statistician, National Tuberculosis Association
NEW YORK

At the meeting of the International Union Against Tuberculosis at Oslo, in 1930, one entire day was given over to a discussion of medical teaching in tuberculosis. In view of the fact that this subject is gaining greater importance, a study was undertaken to determine its status in the United States.

On reviewing the statistics which have been compiled, one observes that tuberculosis mortality has decreased in this country to a point at which its rate in 1931 was 67 per hundred thousand. This is one third of the rate that existed in 1904, and during these twenty-seven years tuberculosis has dropped from first place to seventh place as a cause of death. At the present time this disease takes its greatest toll of life between the ages of 15 and 45, and between these ages it still heads the mortality list. This in itself calls for continued consideration of the educational aspects of this very vital subject.

Two problems immediately present themselves; viz., the medical problem and the public health problem. From the medical standpoint it is essential to appreciate that the final favorable result is dependent in no small measure on the early diagnosis of the disease. On the other hand, from the public health standpoint, a late diagnosis delays supervision and control and makes possible increased dissemination of the infection in the community.

During the year 1930, in the public clinics of the five large cities enumerated in table 1, 11,782 individuals were diagnosed for the first time as having tuberculosis. The table gives the stages of this disease and also the percentage of patients in the various stages as they have been found in these communities and in the total.

From an analysis of these statistics it is obvious that in 70 per cent of these patients the disease had progressed to a stage, moderate or far advanced, lessening the opportunity for recovery. The community likewise has been subjected to the possible hazard of uncontrolled infection.

Table 1.—*Stages of Tuberculosis in Persons of Five Cities*

	Minimal Incipient		Moderately Advanced		Far Advanced		
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Total
Chicago.	1,088	34	1,153	36	962	30	3,203
New York.	1,197	31	1,792	46	885	23	3,874
Cleveland	264	37	330	46	124	17	718
Philadelphia	964	27	1,427	40	1,178	33	3,569
Los Angeles*..	38	9	212	40	168	51	418
Totals..	3,551	30	4,914	42	3,317	28	11,782

* Do not show stage on nonactive pulmonary cases.

Has the lay education, conducted continuously for twenty-six years, failed to bring a response from these patients so that they did not present themselves for a timely diagnosis? While this is true in some instances, there are those patients who have presented themselves, and for whom a correct diagnosis was not made until the disease had progressed beyond the minimal stage. On this assumption we have for some time made the statement, "if we are to educate lay individuals to suspect a disease, the medical practitioner must be able to confirm or remove that suspicion."

Table 2—*Status of Tuberculosis Teaching*

	Number	Per Cent
All colleges	64	100.0
Special department	19	29.7
No special department	45	70.3

Table 3.—*Type of Instructor in Didactic Course*

Type of Instructor	Number	Per Cent
All colleges.	64	100.0
Internist	22	34.4
Tuberculosis specialist	33	51.6
Both internist and tuberculosis specialist	9	14.1

TEACHING OF TUBERCULOSIS IN THE UNITED STATES

To determine the status of medical teaching in tuberculosis in the medical colleges in the United States, questionnaires were sent to these institutions. There are sixty-six approved colleges which offer a complete curriculum in medicine. Sixty-four of these colleges returned their questionnaires more or less completely filled out. The data have been arranged in tables which are practically self-explanatory.

Nineteen colleges, or 29.7 per cent, have a special department for teaching tuberculosis. This situation is usually found because some clinician has developed an unusual interest in tuberculosis. Obviously the intensification of this interest has resulted in improved facilities for teaching.

Thirty-three colleges, or 51.6 per cent, have availed themselves of the specialistic knowledge in teaching tuberculosis to their students. This is an important consideration. Nine additional colleges, or 14.1 per cent of the total, have teaching in tuberculosis divided between the internist and a tuberculosis specialist.

Teaching of clinical tuberculosis is done in general medical dispensaries in 71.9 per cent and in general hospitals in 68.8 per cent of the group referred to in table 4. These services are dependent on the occasional tuberculous patient admitted to them.

The instructor for teaching tuberculosis should be a member of the faculty of the college which is affiliated with the tuberculosis institution in an attending or consulting capacity.

Table 6 shows teaching affiliations with tuberculosis institutions. The colleges with special tuberculosis departments show affiliations in greater number than those having no special department. Affiliations are of importance only when the sanatoriums and those teaching are utilized to the fullest extent.

The college faculty having representatives on the specialty services of tuberculosis sanatoriums number only thirty-seven, or 57.8 per cent. This specialty type of affiliation is recognized today as important in rounding out not only the medical service to the patient but the medical knowledge given to the student.

Table 4.—*Type of Place in Which Clinical Work is Done*

Type of Place	Number of Colleges	Percentage of Colleges Reporting
General medical dispensaries	46	71.9
Special tuberculosis dispensaries	25	39.1
Tuberculosis sanatoriums.	28	43.8
Tuberculosis hospitals.	23	35.9
General hospitals	44	68.8

Eleven colleges reported resident clerkship affiliations of varying lengths of time. In our opinion, the resident clerkship plan is a most valuable asset to the medical students' tuberculosis curriculum.

This table shows that only nine of the sixty-four medical colleges offer regular postgraduate courses. There is a definite lack of facilities for postgraduate instruction for that large group of medical practitioners about to graduate or for those who have been in practice for many years. The colleges with special tuberculosis departments, numbering nineteen, have failed to appreciate this great need, for only one of this number offers a postgraduate course. The curriculum committees of a number of colleges complain of the difficulty in arranging their schedule to include more hospitals for special courses. This cannot hold true of the postgraduate course, which, when properly presented, attracts large numbers of physicians.

Table 5.—*Type of Instructor Giving Clinical Instruction*

Type of Instructor	Number	Per Cent
All colleges..	64	100.0
Faculty	41	64.0
Tuberculosis clinician associated with outside institutions	1	1.6
Both faculty member and tuberculosis clinician associated with outside institutions.	21	32.8
No report	1	1.6

THE TEACHING OF TUBERCULOSIS IN EUROPE

The undergraduate teaching of tuberculosis in German universities has not been stressed to any considerable extent. Prof. Wilhelm His[1] of Berlin recently reported on such teaching in his country. A chair of tuberculosis does not exist in any German university.

---

[1] His, Wilhelm: Teaching of Tuberculosis, Tr. Internat. Union Tuberculosis, Oslo 7: 454-469, 1931.

Tuberculosis is discussed in the different divisions in lessons on pathology, anatomy, clinical medicine, surgery, pediatrics and dermatology. The roentgen interpretation is demonstrated in courses on clinical medicine. The lectures on tuberculosis, given in the universities, do not take place at regular intervals. They also are usually limited to pulmonary and surgical tuberculosis and the therapeutic methods that have been developed in the care of these conditions. Demonstrations on the diagnosis and treatment are included in the teaching curriculum, in outpatient departments and in the wards. The lectures on public health include discussions on the social aspects of tuberculosis. A great number of the universities arrange medical trips once or twice a year to visit sanatoriums and inspect their work. Tuberculosis dispensaries and sanatoriums are, however, not definitely affiliated for teaching purposes with the medical departments of the universities. In other countries on the continent of Europe a similar condition exists for teaching undergraduate students tuberculosis —tuberculosis not being taught in a special division but being given as part of the general courses in the curriculum. Sir Robert Philips of Edinburgh has manifested a deep interest in the teaching of tuberculosis. This has resulted in the development of a special department of tuberculosis at the Edinburgh University. A rounded out curriculum covers the various phases of this disease. The didactic lectures are amplified by practical demonstrations. This eminent authority on tuberculosis states that "the need for training in tuberculosis in one shape or another is generally felt."

TABLE 6.—*Tuberculosis Teaching Affiliations According to Status of Tuberculosis Teaching*

Teaching Affiliations	All Colleges	Colleges with Special Tuberculosis Department	Colleges with No Special Tuberculosis Department
All colleges	64	19	45
Municipal sanatoriums or dispensaries	22	7	15
County sanatoriums or dispensaries	5	1	4
State sanatoriums or dispensaries	6	2	4
Private institutions	5	1	4
Municipal plus state or county sanatoriums or dispensar [illegible]	7	3	4
Municipal or s [illegible] saries plus [illegible]	7	3	4
No affiliations	12	2	10

TABLE 7.—*Representation of the Professional Staff Representing the Nontuberculosis Specialties on Tuberculosis Sanatorium or Hospital Consulting Staffs*

Representation	Number	Per Cent
All colleges	64	100.0
Represented	37	57.8
Not represented	21	32.8
No report	6	9.4

POSTGRADUATE TEACHING OF TUBERCULOSIS IN EUROPE

Postgraduate teaching of tuberculosis in Germany was stressed long before it was in other countries and a good organization was developed for instruction to the medical practitioner. Professor His, in discussing this phase of teaching, brings forth the fact that all the universities organize re[illegible] courses for doctors, which include [illegible] are, however, a few universities which have organized special courses in this disease. The Central German Committee for Postgraduate Teaching organizes courses for the study of tuberculosis independent of those conducted in the universities. The teaching in some of these is done in sanatoriums or in the tuberculosis services of general hospitals. The curriculums are arranged so that they deal principally with problems of tuberculosis as they relate to anatomic pathology, diagnosis, therapeutics and social prophylaxis. Modified series of lectures are sometimes organized for Saturday and Sunday to appeal to medical practitioners who can attend without interrupting their work only on these days. From 1920 until 1929 the German Postgraduate Committee had organized 117 courses, with series of lectures in fifty-eight towns or sanatorial centers. The number of those in attendance has varied between 40 to over 200. Moreover, in Prussia, thirty courses were organized in thirteen sanatoriums, while in other German states ten sanatoriums functioned in giving twenty-three courses. In Italy, Holland, Norway, Austria, Poland, Rumania and Sweden, postgraduate courses are given with regular and irregular frequency. The limited number of such courses given in these countries fails to emphasize the importance of the tuberculosis problem. In some of these countries postgraduate teaching is subsidized and arranged for either by the government or by the public health agencies in connection with universities and tuberculosis institutions. Great Britain does not manifest the interest in postgraduate teaching that is in evidence on the continent.

TABLE 8.—*Period of Clerkship in Colleges Reporting Resident Clerkship Affiliations*

Period of Clerkship	Number of Colleges
All colleges reporting resident clerkship	11
One week	3
Two weeks	2
Four weeks	3
Eight weeks	1
No report	2

A PROGRAM OF TUBERCULOSIS TEACHING

Medical colleges, located as they are in urban centers, have within a short distance sanatoriums for the care of the tuberculous. The sanatorium constitutes an ideal school for the study of tuberculosis. It requires only the association of the teaching faculty of the medical college with the sanatorium through the appointment of such teachers to the attending and consulting staffs.

TABLE 9.—*Postgraduate Instruction in Tuberculosis According to Status of Tuberculosis Teaching*

Postgraduate Instruction	All Colleges	Colleges with Special Tuberculosis Department	Colleges with No Special Tuberculosis Department
All colleges	64	19	45
Regular postgraduate courses	9	1	8
Postgraduate courses possible of arrangement	3	3	
No postgraduate course	42	13	29
No report	10	2	8

The staff specialists, recruited from the medical colleges, bring to the tuberculosis institution a knowledge not only of tuberculous conditions but also of nontuberculous complications that often require urgent care. The institution makes available, for purposes of lecture and demonstration, unlimited material. Realizing this, one of us,[2] in 1927, as director of the municipal tuberculosis organization of Chicago, organized a school of tuberculosis. A consulting staff, representing the professional ranks in the various specialties from the four class A medical schools in Chicago, was appointed. The courses were as follows:

A. *Undergraduate Teaching.* — 1. Resident clerkship. Twelve students were domiciled at the sanatorium for a period of from one week to one month, each student being assigned to one resident physician. A definite curriculum was outlined and followed.

2. Undergraduate didactic lectures. An entire class not in residence at the sanatorium was given a series of twelve half-day lectures there. These lectures involved the different phases of tuberculosis and practical demonstrations with material from the laboratories and infirmaries.

3. Undergraduate research fellowships. From six to eight students were assigned to assist in research problems during their vacation intervals of four months. This was to train and stimulate these men for future medical research. They were paid a small stipend and furnished maintenance.

B. *Postgraduate Teaching.* — 1. Graduate fellowships. A graduate resident fellowship in surgery and in medicine with remuneration and maintenance was appointed to each of these services. This was to train and prepare these fellows for special work, such as chest surgery. These fellowships were registered with the graduate school of one of the universities for a higher academic degree.

2. Postgraduate clinical instruction to the practicing physician in the environs of his own community. A group of physicians was consolidated into a unit through its local medical society. A meeting hall was obtained nearby. A series of didactic lectures was given by specialists in the various phases of tuberculosis, such as bacteriology, pathology, symptoms, diagnosis and x-rays. These lectures were profusely illustrated with material brought from the sanatorium laboratories. This was followed by three months of intensive chest diagnostic work in the local clinics of the sanatorium, maintained in various parts of the city. On completion of this course, if proficiency was demonstrated, an appropriate certificate was awarded.

Postgraduate special courses also were arranged for the practicing physicians at the sanatorium. The public health phases of tuberculosis work were emphasized.

During the four years of this program, approximately 1,000 senior medical students were given resident clerkships. Approximately 500 students also had the undergraduate twelve weeks' course of lectures in tuberculosis; 110 doctors were given postgraduate courses, and six resident undergraduate fellowships and two graduate fellowships were maintained.

CONCLUSIONS

Tuberculosis continues as one of the major problems from medical and lay standpoints.

The inadequacy of undergraduate and graduate instruction in tuberculosis in the medical colleges of this country prompted this report. This is evidenced by statistics which can be promptly analyzed.

Some medical colleges have thus far no provision for affiliation with tuberculosis sanatoriums so that their students can be properly educated in the problems of tuberculosis.

The European method places its main emphasis on postgraduate study. In contradistinction, a plan developed in this country stresses the undergraduate as well as the postgraduate instruction.

Special attention is directed to undergraduate teaching through the resident clerkship. Postgraduate teaching involves a systematic program of fellowships. Extension courses have brought to the community doctor the teaching clinic, making it possible for him to become familiar with the advances in the recognition and management of tuberculosis.

104 South Michigan Avenue—450 Seventh Avenue.

---

[2] Goldberg, Benjamin: A School of Tuberculosis, Bull. A. Am. M. Coll. 3: 329 (Oct.) 1928.

CURRENT CRITICISMS OF PSYCHIATRY

SANGER BROWN II, M.D.
ALBANY, N. Y.

This paper refers to fourteen articles containing criticisms of mental hygiene and psychiatry, which have appeared in magazines or medical journals during the past four years. They have been written by physicians, welfare workers, journalists and others, and have appeared in such publications as The Journal of the American Medical Association, *Journal of Nervous and Mental Disease, American Journal of Diseases of Children, Lancet, New York State Medical Journal* and *Outlook and Independent,* and in editorial pages of the New York *Times* and in the New York *World Telegram.* They have been printed under such titles as "The Menace of Psychiatry," "The Legend of the Prevention of Mental Diseases," "Psychiatric Bunk," "Psychiatry, the Weak Sister of Medicine" and "We've Gone Psychiatric."

The criticisms are chiefly unfavorable, although some are otherwise. While it is generally wise to ignore adverse comments, the object here is to try to clarify certain facts rather than to bolster up one side of an argument. The criticisms do not relate to the care of mental patients in institutions, but to what psychiatrists have been attempting to do in recent years in the community by way of early treatment, prevention of mental breakdowns, child guidance and so forth.

A pediatrician, under the title of "The Menace of Psychiatry," [1] criticized intelligence tests, behaviorism, psychoanalysis and particularly the educational campaign in child guidance. He took exception to remarks in Watson's book on behaviorism as follows: "No one today knows enough to raise a child. The world would be considerably better off if we were to stop having children for twenty years and were then to start again with enough facts to do the job with some degree of skill and accuracy."

In criticizing intelligence tests, he told of one young mother who was much disappointed because her child had an intelligence quotient of only 119 whereas a neighbor's child had a rating of 129! No explanation by the physician that the test was not an absolute criterion could shake her convictions of the significance of its literal interpretation. Again, this writer described a school in which intelligence quotients were posted and all the children knew their ratings: superior, inferior and so on. One child who was retarded had been placed in a class with morons, much to his and his parents' distress. The writer stated, in effect, that

---

Read before the Section on Nervous and Mental Diseases at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

[1] Brennemann, Joseph: The Menace of Psychiatry, Am. J. Dis. Child. 42: 376 (Aug.) 1931.

mentality can be judged better through observation of the child by an experienced physician than by formal tests.

This critic believed that harm may be done by telling parents too much about child guidance. He stated that anorexia in children is indirectly traceable in many cases to the use of height and weight tables. This standardization encourages parents to keep charts and urge their children to eat more in case of underweight. He pointed out that children are like other young animals with normally hearty appetites, but because of this urging, often become disgusted with food. Hence a problem is created. He feared that this same attempt at standardization carried into the field of conduct and behavior will work even greater havoc.

Again, he questioned current methods in sex education and also the freudian interpretation of explaining some childhood conduct on the basis of the Oedipus complex, the infantile libido, etc.

Although this writer quoted the definition of psychiatry from Webster's Dictionary, he nevertheless included under psychiatry not only subjects legitimately belonging thereto, such as mental hygiene and child guidance, but also psychology, behaviorism and parental education. The latter subjects, while bearing on psychiatry, are related to it only in some respects.

As a contrast to this criticism may be quoted the remarks of another pediatrician,[2] as follows:

> Every pediatrician admits that his practice cannot be carried on effectively unless he faces and solves problems involving child guidance and parental education. He may dislike the idea that this attitude involves him in psychology, psychiatry and education, but he can hardly avoid the entanglements. . . .
>
> Several obvious attitudes are possible for him. The most comfortable one is to sit back and reflect upon the traditional prestige of the practioner of medicine. . . .
>
> A second relatively simple solution, widely practised, is to damn the whole notion of psychiatry, psychology, progressive education and the like and deny the validity of all criticism of our own upbringing. Reaction of this sort is extremely work of any kind. . . .
>
> A third possibility, which involves some difficulty for those who choose to investigate it, is based on a recognition by pediatricians that there must be something in psychology, psychiatry, and mental hygiene.

A director of an important social agency wrote a criticism of psychiatry under the title of "Psychiatric Bunk."[3] In this article, he criticized behaviorism and its theories, especially as to the methods of conducting experiments. He criticized those whom he terms as "half-baked, self-styled" psychiatrists who wish to psychoanalyze every one. He discussed so-called expert psychiatrists in the court room whose hair-splitting contentions mean nothing to the ordinary person. The article contained a criticism of intelligence tests as used in child guidance clinics, in examining immigrant applicants for admission to this country and in the army during the World War.

This writer further stated how a social worker investigating a child's home in a tenement district came to the obvious conclusion, after some weeks' study, that the child was living in a bad environment.

By this writer, a distinction was implied between the leaders of psychiatry and those whom he termed "half-baked," but in the paper the distinction is not very evident. He really seemed to regard them all as half-baked! Again, while he stated that there is a definite difference between psychologists and psychiatrists, he made no clear distinction in his article, and he seemed to prejudice his readers against psychiatry by his title "Psychiatric Bunk." Quotations from this article appeared in a number of papers.

A neurologist, under the title of "The Legend of the Prevention of Mental Disease,"[4] took exception to the educational campaign in mental hygiene. He stated: "Enthusiastic mental hygiene tells us that it is concerned with the prevention of mental deficiency, criminality, the psychoneuroses, the psychoses, antisocial traits, family unhappiness, divorce, prostitution, alcoholism, sexual perversion, epilepsy and other such simple matters. All one can do is to gape and wonder or, perhaps, ask a few questions." In the course of his discussion, the writer stated that criminality depends on inherited factors to a very large degree. He further asked what advance has been made in psychiatry in the past twenty-five years by way of new discoveries which will warrant promises that mental disease can be prevented.

The same writer spoke of what he called the shameful spectacle in the propaganda for cancer prevention, pointing out that while we employ the knife, radium and x-rays, nothing is known of true prevention or control of cancer. He feared for the results of a similar campaign in the field of mental hygiene.

Another neurologist was quoted as saying that psychiatrists are barking up the wrong tree in basing their theories on environment rather than on heredity. Further remarks attributed to him indicated that he was not in favor of a preventive campaign in respect to mental disease.

An En[illegible] when attending the International ([illegible] Hygiene held in Washington in May, 1930, visited a number of institutions and other psychiatric centers in this country at that time. He stated, under the title "Impressions of American Psychiatry,"[5] that in the United States one could see almost everything which was worst and also best in psychiatric practice. He commented favorably on the research activities in the leading psychiatric centers. One cannot rightly take exception to certain unfavorable observations made by him.

The foregoing criticisms fall into two main classes. In the one are activities which, although more or less identified with the mental hygiene movement, are not controlled by psychiatrists or exclusively of psychiatric nature. In this class belong intelligence tests, behaviorism and, to some extent, psychoanalysis.

INTELLIGENCE TESTS

Intelligence tests have been subject to more or less criticism since they first began to be used in this country in about 1912. It has been stated that intelligence cannot be measured, that emotions influence the result, that the tests may be studied up or that they may be deliberately faked.

Intelligence tests are used quite generally by psychologists in examining children, although psychiatrists also use them in child guidance clinics, schools for defectives and elsewhere. However, psychiatrists endorse intelligence tests only as they evaluate them along with the history, physical examination and other considerations. They have been loud in their disapproval of their unwise application. The psychiatrist in using intelligence tests may be compared to the pediatrician prescribing commercial infant foods on occasion. The latter would not wish to be held responsible for the use of these foods unless under his strict supervision.

---

[2] Bronson Crothers, M.D.: The Pediatrician's Relation to Psychiatry and to Education, South. M. J., January, 1932.

[3] Coulter, Ernest K.: Psychiatric Bunk, Outlook and Independent, Oct. 7, 1931.

[4] Wechsler, I. S.: The Legend of the Prevention of Mental Disease, J. A. M. A. 95: 24 (July 5) 1930.

[5] Macpother, Edward: Impressions of American Psychiatry, Lancet 1: 848 (April 19) 1930.

Despite drawbacks and limitations, intelligence tests are as accurate as many other scientific methods now in use. They no longer are regarded as infallible as their enthusiastic supporters once believed; nor do they carry with them the power of prophecy. If given and interpreted by those qualified to use them, they should not constitute a menace.

BEHAVIORISM

Behaviorism is a theory identified by some persons with the mental hygiene movement. However, any one criticizing psychiatrists should be better informed than to classify behaviorism as of psychiatric origin. The originator of behaviorism is not a physician, much less a psychiatrist. He probably would not feel flattered to have behaviorism, which has created world wide interest, regarded as a part of mental hygiene. A majority of psychiatrists understand behaviorism no more fully than do most other physicians.

PSYCHOANALYSIS

Psychoanalysis, since the beginning of the present century, has aroused interest in many parts of the world. However, while psychoanalysis has been closely associated with psychiatry, its theories did not originate from conventional psychiatric sources. Freud has never been closely associated with psychiatrists as a group. And psychiatrists, far from having endorsed psychoanalysis without reservation, have often been severe in their criticism of it. However, psychiatrists are investigating its principles, many of which have been incorporated in psychiatric practice without appreciation of the origin. Such terms as repression, retardation, inferiority complexes and many other terms used by psychiatrists are of psychoanalytic origin.

Psychiatry and mental hygiene have a broader field than psychoanalysis. It would be unfortunate if psychiatry limited itself to preoccupation with psychoanalytic principles and ignored the broad foundations on which it originated. For the present, it would appear best for those who are not fully conversant with psychoanalysis to refrain from undue criticism, but likewise to withhold their full endorsement.

Other activities of psychiatrists have been adversely criticized in the aforementioned articles. The latter group of activities are of strictly psychiatric origin, and psychiatrists are responsible for them. These include such activities as child guidance, public education in mental hygiene, the psychiatric social worker and expert court testimony by psychiatrists.

CHILD GUIDANCE

The education of parents in some aspects of the guidance of children has doubtless resulted in making some mothers unduly concerned about their children's development. As pointed out in one of the aforementioned criticisms, public education about medical matters may have an undesirable influence on some persons. Physicians are visited repeatedly by persons with normal hearts, requesting an examination, although they may have had many previous examinations. Reassurance is of little value to these patients as they are in constant fear that they will drop dead of heart disease. Others fear tuberculosis and seek frequent examinations, and still others fear cancer. There are patients who specialize in having operations and who succeed through persistent complaints in getting surgeons to operate on them, often more than once. Then there are some who do not fear disease for themselves but for their children.

These patients are seen both in private practice and in free clinics. A knowledge of disease has offered them a peg on which to hang their anxieties and complaints. While information about mental hygiene or preventive medicine gives such patients some definite disease to fear, it does not create the fear. The fear is a symptom of their nervous state. This situation, therefore, does not justify the suppression of public health movements.

Education of the public in the field of child guidance deals with such subjects as the training of young children in proper habits of eating and sleeping and in toilet habits, the acquiring of emotional control in early childhood, encouraging parents neither to pamper their children nor to dominate them, and the recognition of unfavorable teaching methods for some children who are scholastically handicapped. Any teaching which calls for too much standardization, as in height and weight or in mental qualities, is undesirable, as has already been stated. But such rigid teaching need not be a part of public education. Child guidance clinics are being used with increasing frequency in schools, in children's courts and by welfare agencies, and, wisely directed, they should be a benefit rather than a menace.

Some extremists, it is true, such as those advocating absolute liberty for the child under all circumstances and those cataloguing almost his every word and action, have unwisely attempted to take a part in child guidance activities. Psychiatry cannot control these misdirected activities any more than medicine can control faddists in the direction of nature cure, diets and other eccentric health activities.

The writer who referred to the needless investigation by the psychiatric social worker, as mentioned, was not fully justified in his criticism. A boy may live in poverty in a basement, but nevertheless grow up to be a successful and capable man. The social worker was doubtless looking for less obvious influences, such as an unfavorable example by the father or mother, insufficient oversight, bad companionship and so on. While social workers are doubtless prone to make mistakes, they will eventually fill the same place in the mental hygiene field as the public health nurse fills today in preventive medicine. Physicians are critical of the work of nurses at times, but this does not discredit the entire nursing profession, nor do some mistakes in social work discredit all social workers.

COURT TESTIMONY

Psychiatric testimony in the court room has been the subject of much criticism. This section of the American Medical Association and a special committee of the American Psychiatric Association have made careful studies and recommendations in the past regarding court testimony. Until these recommendations are seriously considered in court proceedings, little change is to be expected. However, psychiatrists are not the sole offenders in respect to expert testimony. Neurologists are likewise to blame, and other physicians who are not qualified by training to pass as experts not infrequently give so-called expert testimony. It is agreed by those best informed on the subject that no improvement may be expected as the law stands at the present in most states in respect to expert testimony.

When the time comes that the state, through the court, appoints a committee composed of psychiatrists selected from a list who have proper qualifications, more satisfactory results may be expected.

In one article, psychiatric court testimony is referred to as "jargon." It was pointed out by a journalist writing to the New York *Times*,[6] in defense of psychiatry, that psychiatric terms are not always comprehensible to the layman any more than are the terms of the biologist, the chemist and the surgeon. This fact should not justify the use of the term "jargon" in this connection.

In what light are the foregoing criticisms to be regarded? While those mentioned come from a small number of persons, they no doubt voice the feelings of many more. The titles cited, in which psychiatry is spoken of as bunk, a menace, a legend and a weak sister, suggest bias on the part of these writers, to say the least; but I shall pass over that aspect of the matter. To some extent, these criticisms undoubtedly represent opposition which commonly exists toward unfamiliar teachings. Public education is often an effort to make people do something to which they are either indifferent or opposed. Forcing people to wash milk bottles, remove garbage, etc., makes the public health movement unpopular with some persons; likewise, insistence that the patient discuss unpleasant facts or admit wrong points of view makes mental hygiene unpopular in some quarters. Again, over-enthusiastic promoters who make extravagant claims often make opponents rather than converts to their cause.

Some of the criticisms outlined are based on the common but mistaken belief that mental disease is always inherited and the expression of a latent mental weakness or instability. This point of view implies that insanity is one disease and brought on by one cause. As a matter of fact, there are many mental diseases variously divided into groups the same as are physical diseases. For purposes of classification, mental diseases are often divided into two main classes: those of organic origin and those for which no organic cause can be found.

Organic conditions, i. e., such as syphilis, acute infectious disease, traumatic brain injuries and arteriosclerosis, and toxic agencies, including alcohol, drugs, etc., exist as causes in slightly over 50 per cent of all cases admitted for the first time to institutions for mental disease. In view of the fact that such well known organic causes are known should not prevention be attempted?

In respect to nonorganic causes, inherent factors are, of course, important, but an inherent tendency toward disease does not imply that its occurrence is inevitable. Those constitutionally predisposed toward tuberculosis have not stood in the way of a tremendous reduction in the death rate from that disease in the past forty years. In mental disease, such factors as an unfavorable environment in early childhood, prolonged mental conflicts, undue repression of emotions and other mental causes may either lead directly to a mental breakdown or prepare the soil for mental disease at a later date.

Again, there are social influences which are harmful to mental health. Such influences as the repressive atmosphere once existing in New England, the refusal to admit mental conflicts or discuss them with any one, the bitter condemnation of minor wrongdoings in oneself or others, or again the complete freedom from restraint as advocated by some after the World War, these trends in society are not conducive to mental life.

Will not mankind be benefited if these unfavorable influences either in the life of the individual or in society are corrected as far as possible through public education by recognized mental hygiene societies rather than permitted to go unchallenged by any authoritative body?

Mental hygiene has attracted much attention to itself in recent years because of the increasing interest of many persons in the functioning of the mind. A discussion of mental mechanisms, an interest in self-analysis or in analyzing other persons, in investigating the working of the mind and in evaluating emotions has taken place in the daily press, in public addresses and elsewhere. Biologists, psychologists, historians and educators, as well as journalists, novelists and public speakers, have expressed themselves on the subject of mental functions. It would be misleading to think that psychiatrists and mental hygienists were the sole originators of this movement as some critics seem to believe. Psychiatry has been known to a mere handful of people until quite recently.

The present age has brought with it complications in society which have resulted in conflicts affecting both classes and individuals. Where these conflicts seem to be of mental origin, they should be investigated and studied just as the causes of physical disease are studied. This point of view has doubtless increased the public's interest in mental hygiene. In taking up this question of mental health, psychiatry is merely paralleling what general medicine has done in public health.

If this movement is not led by responsible leaders, the field will be left open to faddists and fanatics who foist their theories on the public the same as quacks have succeeded in doing at times in the treatment of physical diseases. A moratorium in mental hygiene, as suggested by one of the aforementioned writers, would leave the field open to a group of charlatans.

Books on mental health written by nonmedical persons have a wide circulation. Some titles are as follows: "The Mind in Action," "Lives in the Making," "Use Your Mind," "Straight and Crooked Thinking," "The Jungle of the Mind," "An Alphabet of Attributes" and "Children and Their Parents." Much of the material of these books has been gathered from responsible sources in the mental health field. Books by extremists and faddists purporting to be on mental health would doubtless be much more numerous than they are now if there were no mental hygiene teachings to offset them.

If universal harmony existed in the world today, a mental health program would be superfluous. But more than a fair share of the ills of the world arise from circumstances which might be avoided through fuller understanding by man of his own psychology and mental outlook. Society suffers from mental as well as from physical ills. Some day it may be possible to recognize these unhealthy mental trends more clearly than now.

In the meantime, concrete evidences of lack of satisfactory mental poise on the part of a considerable percentage of the population is seen not only in frank mental disease, but in the neuroses, the psychoneuroses, emotional instability, delinquency, crime, problems in children, maladjustments between married persons and other evidences of lack of sound mental health in various forms. With these conditions so prevalent, the need of education in the field of mental health should be evident. In fact, the advantages of teaching mental health as a part of all education may be appreciated in the future. Members of the medical profession and others interested in social welfare will render an important service if they not only refrain from ill considered criticism of the mental hygiene movement, but lend their support to recognized mental agencies.

---

[6] Barnes, H. E., in Liberal Viewpoint column, New York World-Telegram, Dec. 5, 1931.

ABSTRACT OF DISCUSSION

Dr. H. Douglas Singer, Chicago: I think that one can get somewhat unduly alarmed by the facts of criticism. It seems to me that criticism is a healthy sign. It means at least that something is stirring. I wonder whether the criticisms that were offered in the address by the chairman do not follow similar lines. Investigations in medical schools point out the lack of properly trained personnel even in the field of psychiatry itself. If one adds that the whole subject has been, as Dr. Brown said, a sort of foreign body, isolated as Dr. Ebaugh said, one can readily understand the reason for these recurring criticisms. I think that the answer is that those who are interested in this field should do some real work rather than writing quite as much as they tend to do. If psychiatry is taught as it should be taught in every medical school there will be no more of this type of criticism.

Dr. George W. Hall, Chicago: I was pleased to note the broad view that the author took in the presentation of his subject. One must expect criticism in whatever field one may be working in, especially if the views one expresses are in advance of those to which the public are accustomed. That should not be discouraging, however. The subject of mental hygiene, as has been the case with many other topics of medicine, necessarily must undergo the acid test before it is recognized as one of the essential topics that have to do with the dealing of the mental side of patients. There is no question, however, about the foundation on which it is placed, and the future development will eventually present itself in a more crystallized form. I think that if the author's views could be followed out in the way in which he has outlined, by accepting the experience of the psychiatrist and the neurologist rather than placing it primarily in the hands of individuals who have not had medical training, it will reap more definite results than by training individuals to be psychoanalysts who have not had sufficient experience in the basic elements of neurology and psychiatry.

Dr. George Stevenson, New York: In the past week criticisms have come to me in two different cities. They were particularly concerned with the relations between pediatrics and psychiatry, and particularly pediatrics and child guidance. From this criticism it is evident that these issues are straw men that have been set up by some one poorly acquainted with what is going on. In other words, in my contacts with people in the child guidance field the general point of view is that the psychiatrist in child guidance should be handling the more complex problem children, and that the pediatrician and the general practitioner, who sees the child in all his health relationships, should be the first line of defense. That, I think is the prevalent point of view of psychiatrists in child guidance work, but it is also their point of view that pediatricians and general practitioners should be trained to carry that responsibility which they cannot escape. The essential point I want to bring out is that there have been straw men set up creating an issue between pediatrics and child guidance or psychiatry, and between general medicine and psychiatry, whereas there is no real issue between the leaders in those two fields. The apparent issue, if it is studied, grows out of the gropings and defenses of those who are not in contact with one another. One finds exactly the same thing in the relationship between child guidance and public schools. In response to a point brought out in the discussion, I should say that it is far more dangerous to assume to prepare young physicians and young nurses to deal with patients and train them to deal with only organs than it is to prepare the certain special group referred to go into the home in order to make an objective study of it and to carry treatment into that situation. One of the examples of criticism which Dr. Brown brought up is particularly interesting if it is looked at as a psychiatric problem. Here is the director of a social agency. He has created this agency and is the founder of his movement. In founding the movement, as is the case with many founders, he thought it would be a cure-all, a thing that would deal with the delinquent boy, the maladjusted boy, a thing that was entirely sufficient in itself. But this doesn't turn out to be the case. This child guidance clinic comes along and attempts to add to what he has done. It recognizes the value of the job he has done. It recognizes its defects and attempts to deal with them, but this individual is dissatisfied because his baby is defective and he must make it appear to be absolutely whole by pronouncing the lack of necessity of this other child guidance procedure.

Dr. Sanger Brown II, Albany, N. Y.: In the next twenty years, society will do much toward the prevention of mental disease. There has been wide interest in the early treatment of mental disease and there will be full developments of this movement in the future. There need be no fear from the criticisms that have been cited, if this movement is kept under the general direction of the medical profession. Mental hygiene teachings are being attempted in universities, colleges and elsewhere, but unless these teachings are guided by physicians and others familiar with mental hygiene, mistakes are liable to result.

A BIOLOGIC CONCEPT OF DISEASE

ELI MOSCHCOWITZ, M.D.
NEW YORK

The more one sees of chronic disease the more keenly one appreciates that what has been observed are not sharply defined genera but transitions of morbid states from one to another. One realizes that much of the differentiation that has resulted from more refined observation and more detailed laboratory investigation has tended to confuse rather than to simplify the issue and has caused the classification of disease to be more artificial than biologic. Too often diseases are classified according to a mere grouping of signs and symptoms, rather than in relation to a precise etiology or a well observed consistent pathogenesis. Many chronic diseases, like biologic species, present an evolution from the primitive or embryonic to a full-fledged form. It would be just as consistent to classify the earliest, the intermediate and the final phases of disease as separate entities as it would be to classify the tadpole and the frog as different species.

Most of the confusion in classifying disease comes from an ignorance of the causes of disease. As long as the cause of many chronic maladies is unknown, so long will one be forced to classify disease on the basis of clinical differentials. This does not mean, however, that mere modifications of disease processes require separate classification. Time and again conditions that are regarded as separate disease entities eventually prove to be only biologic sports or mutations.

It is not generally realized that those whose entire medical experience centers in hospitals and consultation work see only a small cross section, usually the terminal one of the disease. Of the previous life cycle of the disorder they are ignorant; at best the previous cycle may sometimes be painfully reconstructed. To be able to follow a malady from the beginning to the end is the special privilege of the practitioner, and the problem of unraveling the evolution of morbid processes is his. MacKenzie recognized this a decade or more ago, and the institute in St. Andrews, in which the very begin-

---

Read before the Greater Boston Medical Society, Boston, March 1, 1932.

nings of disease are studied, is the outcome of his reflections.

In the absence of a knowledge of etiology, one of the best bases for the classification of chronic disease is a uniform and consistent pathogenesis. One may even be unaware of the precise progress of events, of a correct teleologic interpretation, but one is safe in saying that maladies that have the same pathogenesis are usually intimately related. At the outset, therefore, diseases may be classified into two great divisions. Those which have a well established pathogenesis possess the dignity of a distinct genus or disease; those which have been classified on the basis of a mere grouping of clinical phenomena are syndromes.

This question of evolution of morbid states is not merely a matter of correct interpretation. Current statistics on nosology lose much of their entire significance, or even all of it, because the recording clinician did not note in what phase of the process the symptom or sign occurred. It is like trying to correlate a number of unrelated variables.

Studies in this direction will tend not to split up disease complexes, as was so commonly done in the past, but to unify them. In order to show how a biologic approach to the study of classification should be made, I shall submit a number of rather common instances in which the evolution of pathologic conditions is exemplified.

FIVE INSTANCES EXEMPLIFYING THE EVOLUTION OF PATHOLOGIC CONDITIONS

1. *Hypertensive Disease.*—Most physicians can recall time honored teaching in which renal conditions "caused" hypertension: the large red kidney, the small red kidney, the large white kidney, the small and large granular kidneys and the contracted kidneys of different sizes and hues. These supposedly different species of renal disease associated with hypertension are now known to fall into two groups, each with its own distinct pathogenesis: arteriocapillary fibrosis and glomerulonephritides.

A. Arteriocapillary Fibrosis: It has become manifest that the arteriocapillary fibroses are not the cause but the results of the hypertension, and the supposedly different kinds of kidney represent phases of a pathogenesis in which the earliest is represented by a kidney with minimal vascular lesions and the final the small scarred, contracted kidney; only the latter is a final result. The entire pathogenesis is perfectly explainable on the basis of vascular damage, and the kidney found post mortem represents, therefore, only the localized expression of a generalized arteriosclerosis of the greater circulation. It must be remembered that the patient usually dies, not directly from the renal damage but from a vascular or circulatory crisis, and the state of the kidney depends on the period of the disease in which the crisis occurred. "Nephritis" and the arteriosclerosis have no mutual reactions on each other but are the simultaneous reactions to the same insult, namely, hypertension. In the evolution of hypertensive disease the renal disorder represents only a small part of the clinical picture, the brunt falling on such organs as are more profoundly affected by the arteriosclerotic change. Chart 1 summarizes all the possible eventualities.

Why the brunt of the disease should fall on one organ more than on the other is an intriguing problem, but this conception explains why various combinations of clinical manifestations are often possible with hypertensive disease. In other words, here are a great number of clinical products the embryonic stage of which is a pure functional derangement; namely, hypertension. It is only necessary to add, in order to avoid misinterpretation, that these final products are perfectly possible without hypertension. I have shown that arteriosclerosis is the result of the normal intravascular pressure and is due to no other factor; hypertension simply brings about the vascular changes earlier and in a more intensified degree than the normal involution.

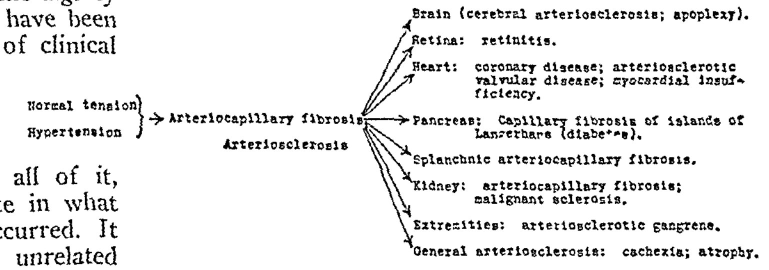

Normal tension
Hypertension
Arteriocapillary fibrosis
Arteriosclerosis
Brain (cerebral arteriosclerosis; apoplexy).
Retina: retinitis.
Heart: coronary disease; arteriosclerotic valvular disease; myocardial insufficiency.
Pancreas: Capillary fibrosis of islands of Langerhans (diabetes).
Splanchnic arteriocapillary fibrosis.
Kidney: arteriocapillary fibrosis; malignant sclerosis.
Extremities: arteriosclerotic gangrene.
General arteriosclerosis: cachexia; atrophy.

Chart 1.—Eventualities possible in hypertension.

B. Glomerulonephritis: I[1] have called attention to the interesting natural history of glomerulonephritis. If patients with this disease are studied over a period of years, the following eventualities may occur:

(*a*) Complete clinical and anatomic recovery.

(*b*) Recovery from the acute phase; persistence of albuminuria for a period of a few months to many years; progression of lesion with recurrence of hypertension, arteriosclerosis, death in uremia or from myocardial failure with the clinical picture of malignant sclerosis.

(*c*) Recovery from acute phase; persistence of albuminuria, which is frequently orthostatic in type for many months; recovery.

(*d*) Acute glomerulonephritis; death in acute myocardial failure.

(*e*) Acute glomerulonephritis; persistence of excessive albuminuria resulting in a transition to the nephrotic phase; death from uremia or myocardial insufficiency.

I have not observed a complete clinical recovery with a recurrence many years later. As far as my experience is concerned there is either complete recovery or some evidence of clinical continuity. Without knowing what has gone before, it is sometimes impossible to determine, when the clinical picture of malignant sclerosis arises, whether the disease began as an essential hypertension or as a glomerulonephritis. The same problem arises in the interpretation of the origin of the nephrotic syndrome.

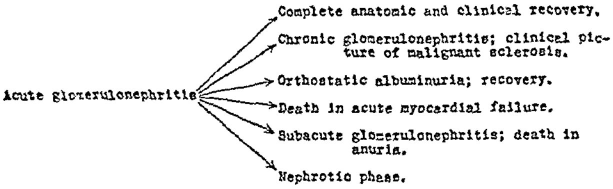

Acute glomerulonephritis
Complete anatomic and clinical recovery.
Chronic glomerulonephritis; clinical picture of malignant sclerosis.
Orthostatic albuminuria; recovery.
Death in acute myocardial failure.
Subacute glomerulonephritis; death in anuria.
Nephrotic phase.

Chart 2.—Eventualities possible in acute glomerulonephritis.

2. *Nephrosis.*— In a previous paper[2] I have discussed the validity of nephrosis as a definite disease concept and tried to show that it has no single etiology or definite background in pathology. In Mount Sinai

---

[1] Moschcowitz, Eli: New England J. Med. **202**: 320 (Oct.) 1930.
[2] Moschcowitz, Eli: Am. J. M. Sc. **172**: 469 (Oct.) 1926.

Hospital the clinical nephrotic picture as described by Epstein and others has been associated with four different lesions: lipoid degeneration, chronic parenchymatous nephritis, amyloid disease and subacute or chronic glomerulonephritis. In other words, nephrosis is not a disease but a syndrome with fairly well defined characters, the prominent evidences of which are fairly uniform blood chemistry and edema.

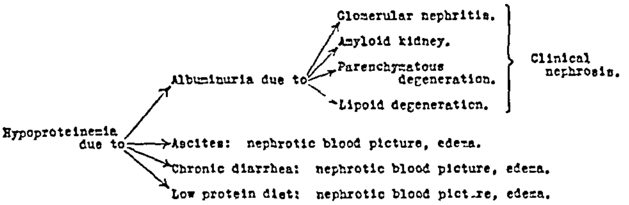

Glomerular nephritis.
Amyloid kidney.
Parenchymatous degeneration.
Lipoid degeneration.
Clinical nephrosis.
Albuminuria due to
Hypoproteinemia due to
Ascites: nephrotic blood picture, edema.
Chronic diarrhea: nephrotic blood picture, edema.
Low protein diet: nephrotic blood picture, edema.

Chart 3.—Relations of nephrosis.

The hypothesis of Epstein,[3] who believed that the clinical manifestations of the disease were due to loss of protein, has been to a large extent confirmed by Leiter,[4] who proved that plasmapheresis in animals produced a clinical picture that simulated closely that of nephrosis in man. A nephrotic blood picture is also noted in loss of protein within the body itself, as in ascites. This is not the place to enter into the interpretation of the various clinical phenomena of nephrosis, as determined by the loss of protein, but it is pertinent to note that the edema, perhaps the most constant of all the evidences of nephrosis, is perfectly explainable on the principle of the law of Starling, who found that the exchange of fluid between the blood vessels and the tissues depended on a balance between the hydrostatic pressure within the capillaries and the osmotic colloid pressure of the plasma, which tend to neutralize each other, a law which Epstein brought into his conception. This is important for the explanation of the mystery of the edema noted on the continent during the war, where the diminution of protein was due to insufficient protein intake, and the edemas noted in the chronic diarrheas. The cause of a primary nephrosis, which Epstein described as "diabetes albuminuricus" and which often results in recovery under an appropriate diet, is still unknown. It is possible that the lipoid and parenchymatous renal lesions may be the result of an unknown primary disorder of metabolism. The amyloid kidney and the chronic glomerulonephritis are undoubtedly primary. Biologically speaking, therefore, nephrosis is only a syndrome and not a disease, and any discussion of the subject is well nigh valueless unless its origin is known.

3. *The Evolution of Hypertension of the Pulmonary Circuit.*—Hypertension of the pulmonary circuit leads to pathologic changes which are comparable in every detail to those consequent on hypertension in the greater circulation, the one large difference being that, owing to the blood supply, only two organs, the lungs and the heart, are directly affected, the other organs of the body being affected only secondarily. It is important to recognize that the two circulations are entirely independent as far as the incidence of the hypertension is concerned, and that the dominating lesion of hypertension of the pulmonary circuit is arteriosclerosis of the pulmonary arteries. The changes in the lung are comprised under the generic term arteriocapillary fibrosis, and the lesions are morphologically identical with those seen in the kidney in hypertension of the greater circulation. In other words, although the pressure cannot be measured in the pulmonary circuit, the presence of arteriosclerosis of the pulmonary vessels proves at once that a persistent hypertension of this circulation has been present. The cause of the pulmonary hypertension is always mechanical and in the order of frequency are the following: mitral disease, especially mitral stenosis, emphysema, long standing failure of the left heart, marked diminutions in pulmonary volume (e. g., chronic pulmonary tuberculosis) open ductus botalli, kyphoscoliosis, and communications between the right and left hearts. Schematically the evolution of hypertension of the pulmonary circuit may be represented as in chart 4.

It is evident that the evolution of the various fundamental diseases causing hypertension of the pulmonary circuit covers a broad range both clinically and pathologically. The life cycle is a long one and it is therefore highly important for clinical purposes to recognize in what stage of the evolution the disease process lies.

4. *Exophthalmic Goiter.*—This comprises a series of clinical disorders, the earliest of which have been represented under such various terms as autonomic unbalance, neurocirculatory asthenia and basedoid. The intermediate phases have been described under the generic heading of formes frustes, while the final phases, known conventionally as Graves' disease, with the quadrad of symptoms, tremor, enlarged thyroid gland, tachycardia, and increased basal metabolism, represent the fully developed clinical expression of the disease. Occasionally one has the privilege of observing these various phases passing into each other, both in a forward and in a backward direction, and the common denominator which brings unity to the clinical concept is a characteristic constitution, partly anatomic but mostly psychologic, which persists as a residue no matter what form of treatment is undertaken.

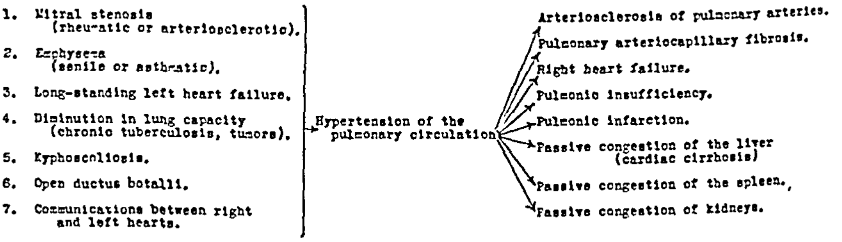

1. Mitral stenosis (rheumatic or arteriosclerotic).
2. Emphysema (senile or asthmatic).
3. Long-standing left heart failure.
4. Diminution in lung capacity (chronic tuberculosis, tumors).
5. Kyphoscoliosis.
6. Open ductus botalli.
7. Communications between right and left hearts.
Hypertension of the pulmonary circulation
Arteriosclerosis of pulmonary arteries.
Pulmonary arteriocapillary fibrosis.
Right heart failure.
Pulmonic insufficiency.
Pulmonic infarction.
Passive congestion of the liver (cardiac cirrhosis)
Passive congestion of the spleen.
Passive congestion of kidneys.

Chart 4.—Evolution of hypertension of the pulmonary circuit.

If the disease is not arrested, various eventualities may arise. First, the persistent tachycardia may lead to myocardial insufficiency. This may result in a number of ways; either directly through the persistence of the tachycardia, through the intermediary stage of an arrhythmia, usually auricular fibrillation or, finally, through the increase and persistence of the usual hypertension that is associated with the tachycardia of exophthalmic goiter. This hypertension in turn may bring about the changes in the greater circulation which have already been discussed. I have seen a number of such evolutions. All in all, the cardiac phase of persistent exophthalmic goiter may be so prominent clinically that the conventional evidences of the exophthalmic goiter appear submerged and it is only by careful reconstruction of the patient's previous course that the true origin of the cardiac phenomena may be determined. The second and, fortunately, less frequent eventuality is the transition to acute thyrotoxicosis and death. The scheme for the evolution in exophthalmic goiter may be represented as in chart 5.

---

[3] Epstein, A. A.: The Nature and Treatment of Chronic Parenchymatous Nephritis (Nephrosis), J. A. M. A. 69: 444 (Aug. 11) 1917.

[4] Leiter, Louis: Proc. Soc. Exper. Biol. & Med. 26: 173 (Nov.) 1928.

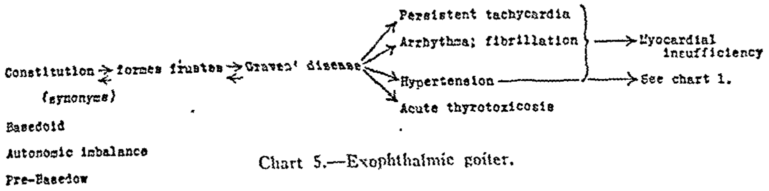


Chart 5.—Exophthalmic goiter.

5. *Toxic Hepatitis.*—This term covers disorders previously known under the names of catarrhal icterus and acute yellow atrophy. These maladies had always been regarded as separate diseases, the main difference being that in the first the patient recovered and in the second the patient died. Since, however, clinically indubitable cases of catarrhal icterus showed lesions of the liver closely resembling those of acute yellow atrophy[5] and, furthermore, since the clinical transition of undoubted catarrhal icterus into equally undoubted acute yellow atrophy is not infrequently seen, it is strongly probable that the two diseases are identical, varying only in intensity. The distinction between the two diseases is no longer a question of the survival of the patient, for it has become clear that patients even with what appears clinically to be acute yellow atrophy recover from the acute phases, the proof being that such patients who happen to come to autopsy reveal profound cirrhotic and compensatory changes that could have come only through a profound and diffuse destructive hepatic damage. Some observers, such as Eppinger, are willing to go so far as to say that the large group of diseases covered under the term splenomegalic biliary cirrhosis arises from a previous clinically severe toxic hepatitis; but as far as I am aware, nobody has yet observed this transition. In passing, the follow up of various forms of destructive liver disease over long periods is something greatly to be desired: physicians are still unaware of the early phases of such rare hepatic diseases as splenomegalic biliary cirrhosis, Banti's syndrome and Hanot's cirrhosis.

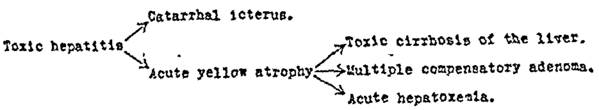


Chart 6.—Toxic hepatitis.

COMMENT

I have cited only a few evidences of the evolution of common diseases with which I happen to be somewhat familiar. There are many others, especially of the rarer varieties, that could be cited. For instance, all evidence points to the fact that diseases associated with a disturbance of the lipoid metabolism, such as amaurotic family idiocy, Niemann-Pick disease, Schüller's disease and the Christian syndrome, are closely related and may even be transmuted from one into the other. In blood diseases, the various forms of agranulocytosis are not sharply defined conditions but represent different reactions between the host and the infection. The aplastic anemias represent end products from exhaustion of the bone marrow due to a different previous disease of the blood-forming organs.

The important point in this brief summary is to call attention to the value of the biologic assay in evaluating disease and to the necessity for studying its evolution over more extensive periods than have hitherto been customary. Unfortunately, the number of diseases in which there are positive criteria or tests for diagnosis, such as the finding of the tubercle bacillus, are limited. For the others, until either a definite cause or a definite pathogenesis has been discovered, the only way to reach an understanding of the disease is by studying its evolution, both clinically and anatomically. Such a study, moreover, is necessary in order to determine the etiology of certain obscure conditions of a long life cycle. What, for instance, is the earliest phase of the leukemias? of pernicious anemia? of Gaucher's disease? of primary polycythemia? The determination of such origins may furnish an important clue to their causes.

25 West Sixty-Eighth Street.

---

[5] Klemperer, P.; Killian, J. A., and Heyd, C. G.: The Pathology of "Icterus Catarrhalis," Arch. Path. 2: 631 (Nov.) 1926.

THE CLINICAL TEACHING OF PREVENTIVE MEDICINE

DWIGHT O'HARA, M.D.
Professor of Preventive Medicine, Tufts College Medical School
BOSTON

The most groping field in the medical curriculum today is that in which we are trying to color the teaching of the practice of medicine with a preventive tinge. The attempt is being made in various ways in various places. Dr. Rosenau, at Harvard, has for several years been conducting amphitheater demonstrations in which the sick man may be made the beginning of a clinical discussion of the hygienic, epidemiologic and public health aspects of disease. Dr. Leathers, at Vanderbilt, has established a fine cooperation between the medical school and the state, county and city health departments, as well as between his own and the other departments of the school, in which the prevention of certain diseases is included in their pathologic and clinical presentations. So we find ourselves, each trying to use the available facilities toward the same end, but each being routed over a somewhat different road, with a different type of car and with by no means the same supplies of oil and gasoline. If here, at the crossroads, we can exchange a word or two descriptive of the scenery that we have been encountering, it may be helpful in deciding where the main and super highways should be built.

A plan which we are developing at Tufts College Medical School differs in some respects from other methods that have been devised. Since 1928, fourth year students have been engaged in the home care of patients under the supervision of graduate instructors in the district service of the Boston Dispensary. This service, the application of which to the teaching of medi-

---

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

cine has been described by Dr. Joseph H. Pratt,[1] provides in a unique way the chance to point out preventive opportunities under the circumstances that confront the practicing physician. The student calls on sick people in their homes every day, and they, his own patients, are used as clinical material. During the past year, while on this service, each fourth year student has attended a series of sixteen conferences. These amplify Dr. Pratt's regular conferences on the practice of medicine and have been largely conducted by Dr. Samuel H. Proger. In them we have tried to do two things: first, to interest the student in the social aspects of disease, and second, to bring him into contact with suitable opportunities to institute preventive measures. The actual circumstances of a case in the district are assigned to be investigated and reported on, together with collateral reading assignments. The prevention or amelioration of an attack of measles, for example, may be discussed in terms of the exposure of a certain family, individual members of which may be known to be tuberculous or otherwise vulnerable. On an examination at the end of the district service each student is asked to discuss the preventive aspects of some particular case that he has seen during the preceding months.

In most of this work we are dealing with the problems of the individual, and concern ourselves with such things as the sanitary features of water, milk or food supplies only when they threaten the welfare of the individual. The environmental factors that favor various diseases and their treatment are analyzed, and an attempt is made to present the available community resources which support, in private practice, the necessary therapeutic or protective treatment. Not only the available resources of the large city but their counterparts in smaller communities are considered, down to the point of unorganized practical neighborliness, which seems to exist in inverse ratio to the population in the country. Thus the student is brought to see his future place in community life and the part that he, as a physician, may be expected to weave in the social fabric.

Tufts Medical School has a particular interest in the provincial problems of New England. We, therefore, consume little time with hookworm disease, malaria or tropical medicine. Smallpox, diphtheria and typhoid fever, on the other hand, are important diseases. While these three diseases are preventable and generally well controlled, they are a potential menace at all times, and we use them as the great examples of actual accomplishment. There is a frontier in preventive medicine, behind which the control of certain diseases is a matter of custom or statutory regulation. These three diseases fall into the group behind this frontier. In Massachusetts vaccination against smallpox is required of all public school children. School age has thus come to be the traditional age for vaccination, and practitioners' offices are filled with 4 year olds during the late summer and fall of every year. We can point out that vaccination between the ages of 2 and 6 months is simpler and safer and provides a larger measure of community protection than the present custom. This brings to the student's attention a large group of unvaccinated persons—a surprisingly large number when a student begins to count them on his daily rounds.

This is also the group of persons who are most susceptible to diphtheria. In Boston, for several years, the custom has been to make a mass appeal for diphtheria immunization to the parents of children in their first year of school. Last summer Dr. S. H. Rubin appealed to the doctors and the parents of the preschool children to have, among other things, their toxin-antitoxin or toxoid inoculations attended to before school opened. The next and last step will obviously be to urge diphtheria immunization for all children at the age of 6 months. It is easy for our students to see how they, the family doctors of the district, are the logical ones to take this step, and a few have actually fared forth on such missions, although it was not required of them. Had such a custom been prevalent in Massachusetts during the past decade, 2,381 cases of diphtheria and 130 deaths might have been averted in the year 1931. Here, then, are specific procedures that can be advocated.

SCARLET FEVER

We are next forced to take a stand of some sort on controversial subjects, the major one at the present time being the prevention of scarlet fever. Six years ago, when scarlet fever knocked at the door of preventable diseases, asking to be admitted on the basis of antitoxic immunity, we were inclined to accept her, provided she could hide her scarlet past. But even though scarlet fever may take off her rouge, change her name and never walk the streets again, closer acquaintance leads us to doubt the respectability of her associates, the hemolytic streptococci. In learning to cope with the toxin of the diphtheria bacillus, we conquered that disease. Not so, however, with the toxin of scarlet fever streptococci; one may immunize against it all one pleases, but the causative organism remains, a streptococcus just the same. In a personal observation of perhaps 500 cases of scarlet fever I have seen but 1 patient who died of primary toxemia. We are inclined to look on the prevention of the primary toxic manifestations of scarlet fever as a luxury, and to instruct our students not from the recent published material on the subject, but in terms of what they actually encounter in the district and will, of course, later encounter in practice.

There has been no difficulty this year in finding available material for such instruction. The following, for instance, is taken from a student's report to the conference, February 6, on a family of nine:

> Thursday, January 27, Patrick, aged 4 years, developed a sore throat and fever and vomited once. During that time he continued to play with his brothers and sisters. On the following day his mother noticed a generalized rash, and on the same day Joseph, aged 9, who had had scarlet fever before, developed a severe tonsillitis and pharyngitis, his throat appearing much like Patrick's. On Saturday, two days after the onset, Dr. Olef was called and diagnosed Patrick's case as one of scarlet fever, and Joseph's case as tonsillitis and pharyngitis. In the two day interval between Saturday and the preceding Thursday, those children who attended school continued to do so. On February 3, Rosemary, who had had scarlet fever, developed an acute follicular tonsillitis, pharyngitis and cervical adenitis, with a temperature of 101.4 F. (oral) but no rash.
>
> This family of nine people live in but four rooms, two of which are set aside as bedrooms and contain one double-sized bed each. One of the bedrooms is adjacent to the kitchen. The other is separated from the kitchen by the dining room, so called, in which there is also a couch. When there is no illness, Mr. and Mrs. King, Patrick (the patient with scarlet fever) and Timothy, the baby, sleep together. They were all sleeping together when Patrick became sick. Why Timothy, who is only 2 years old, has not shown scarlatinal manifestations is perplexing. (Timothy did contract scarlet

---

[1] Pratt, J. H.: New Features in Clinical Teaching, New England J. Med. **203:** 1 (July 3) 1930.

fever on February 7, the day after this report was made.) Joseph, with his tonsillitis, was sleeping with three other members of the family. Since Patrick and Joseph became ill, things are arranged differently. Mrs. King sleeps with Patrick in the bedroom farthest from the kitchen, and Mr. King has been sleeping with Joseph on the couch. The remaining five children slept in the other bed, Rosemary, who has since become ill, among them. When she became ill, I tried to persuade Mrs. King to isolate her from the other children. She promised to do so, but when visited on the following day, Rosemary still occupied the same place in the back bedroom. When asked about it, Mrs. King explained that the family was receiving aid from the welfare society in return for some work that her husband was doing, and that she could better afford to have the children sick than her husband.

Such a case illustrates that the challenge of scarlet fever is not that of its harmless rash, but the larger challenge of the hemolytic streptococci. While these have been classified under such terms as Streptococcus erysipelatis, Streptococcus scarlatinae and Streptococcus epidemicus, one is tempted to philosophize and compare them to groups of persons—musicians, for instance. Some are pianists; others are violinists; still others perform on the piccolo. There is a discipline in the concert hall of the laboratory, where one is apt to find each artist playing his own instrument, but at home in the cool of the evening the clinician will sometimes catch the piccolo player with a trombone—and booming out a very good tune with it, at that! For the fourth year student such circumstances as these constitute a glimpse behind the scenes of the modern contagious hospital and show him how relative the isolation of contagious diseases often is in the community.

TUBERCULOSIS

Tuberculosis is, of course, one of our great problems. Tuberculosis is a disease, the prevention of which is a matter of understanding and optimism. After calling on a patient and studying his environment one of our students reacted as follows, in summarizing his report:

> As institutional care has been refused and cooperation is impossible and not agreeable to the patient, there is dying on Decatur Street a 16 year old youth who has no right to, had the case been handled right from the start. It is better to call the patient dead and to concentrate on his brothers and sisters. This is being done through the East Boston George White Health Unit and the schools. These youngsters report at regular intervals to the clinic, and a thorough check-up of the child by physical examination, roentgenogram and tuberculin test is obtained, along with a careful home and food history.

Let a doctor react in this way and at the same time be interested in individuals and one may be sure that he is doing his part in the fight against tuberculosis.

RHEUMATIC FEVER

On the seaboard, north of 40 degrees, as might be expected we are interested in the disease for which we can do the least: rheumatic fever, in its many manifestations and with its many tragic results. From our confused knowledge of rheumatic fever we grasp at the two straws that may possibly provide encouragement. The first of these is the conception that active rheumatic manifestations are responses on the part of the body to an engagement with the hemolytic streptococci. One has but to have this conception in mind to see it frequently exemplified in practice. For example, there is the notorious association of acute rheumatic fever with attacks of follicular tonsillitis, or the following situation, which was observed this year: A family of three children had all had scarlet fever and none of them had had serum treatment. Four weeks later one of them was suddenly stricken with fever and red, hot, tender, swollen joints. Was this a coincidence of rheumatic and scarlet fever, or could these have been two phases of the same episode? This question is asked rhetorically under these circumstances.

The other encouraging straw about rheumatic fever is the geographic variation in the incidence of rheumatic heart disease. A member of our department who went to medical school in Georgia likes to tell us of the discussion that centered about a case of heart disease in Atlanta—as to whether it was rheumatic or congenital heart disease. I believe the latter was decided on on the grounds of its greater prevalence!

This year we were fortunate in having Dr. Coburn accept an invitation to come from New York and give a lecture on the clinical and anatomic findings in fulminating rheumatism. We make no pretense of teaching the prevention of rheumatic fever, but we believe that an interest in the unsolved problems is quite as worth while as a recital of accomplished facts.

The more one explores it, the larger the field of clinical preventive medicine appears to be. I have touched on only the aspects of a few infectious diseases. There are many others. It would be fatuous to say that one can prevent the so-called degenerative diseases, and yet the treatment of some of them would seem to be the actual prevention of others. Thus, in middle age, obesity is the fibrinogen of diabetes and, to a lesser degree, of heart disease; once developed, diabetes is in turn precursory to arteriosclerosis and arteriolosclerosis, while in the background of all these are the various phases of the condition called hypertension. Here the therapeutic and preventive considerations merge together and make preventive medicine a mere point of view in the larger subject of clinical medicine.

SUMMARY

The fourth year teaching of preventive medicine at Tufts College Medical School is presented. Patients sick in their homes and cared for by the fourth year students, under supervision, are used as clinical material. The students have conferences with clinicians who are interested but not specifically trained in the science of public health. The opportunities for and the limitation of preventive measures are thus pointed out under the actual circumstances that confront the practicing physician. A few specific situations are discussed.

ABSTRACT OF DISCUSSION

DR. W. H. PERKINS, New Orleans: The use of the term "preventive medicine" has broadened in its general scope and has carried us back to the problem of the individual. Tremendous strides have taken place in prevention, but I believe that little further advance is possible in many of these efforts without the point of view which Dr. O'Hara has stressed. I am interested in the efforts that are being made in the different schools of this country to bring over Sir George Newman's dictum of "permeation of the entire curriculum with the preventive idea." Dr. O'Hara has shown us the light in one phase of this problem. It is excellent that the course which he has shown links up so closely with the medical department and uses much of its physical set-up. By taking the student into the domiciliary treatment and observation of his patients, a quicker revival of the family physician may be hoped for. Dr. O'Hara mentioned another thing. He is attempting to drive home to the students the necessity of seeking for more knowledge in order that the chain on many of these disease conditions which have a perfectly developing natural history may be cut. They have vulnerable points and any attack on those vulnerable points is really prevention. Those of us working in the broader aspect of public health welcome every possible effort to increase the student's conception of prevention. We hope that he may look on prevention with a broader vision than is shown in the textbooks. The other advantage of Dr. O'Hara's proposition is that the student gets into the home and thereby learns to send in good reports, which are the public health worker's medium of increasing his efforts. He is also looking in retrospect on the patient, wondering what could have been done to prevent the present condition, much as Dr. Leathers is doing at Vanderbilt. The effort of Dr. O'Hara and Dr. Pratt at Tufts is a step forward. Other solutions are certain to appear. I hope that papers on this aspect of prevention may continue to appear in the program.

Dr. J. E. Gordon, Detroit: The desirable correlation of clinical and preventive medicine is best developed in the education of the undergraduate medical student. Some stimulus must, however, be given the physician now actively in practice; otherwise the well instructed recent graduate may enter the larger professional group and there find his enthusiasm dulled by a general apathy toward preventive medicine. In the symposium of yesterday, in the joint meeting with the Section on Practice of Medicine, the observation was made that often the public is better instructed in recent developments of preventive medicine than the physician himself. In the attempt to interest actively practicing physicians in preventive medicine, the method too often is limited to dissemination of pamphlets, literature and lectures. I believe the graduate physician can obtain more benefit from actual demonstration of the related interests of clinical and preventive medicine, and of the possibilities of that correlation as it affects his individual private practice. In developing this idea, a series of clinical conferences was started in Detroit some years ago, to which all physicians were invited. The communicable diseases were selected as the subject best fitted for that demonstration. Twelve physicians attended the first meeting. In the course of three years that number has increased to as many as 382 physicians who attend these conferences at 10 o'clock each Wednesday morning. The clinics are a joint activity of the health department and the county medical society. Thus far communicable diseases, the venereal disease problem and tuberculosis have been discussed, apparently with a threefold result. The number of new cases of communicable disease has been limited by emphasis on preventive measures. Benefit has accrued to the patient ill with an infectious disease, through demonstration of present-day methods of diagnosis and treatment. Thus the effort toward lowered mortality has been directed not only to limitation of the number of cases, but to better care of patients already ill. Finally, a keener interest in public health problems has resulted from these conferences, as illustrated by the cooperative plans for diphtheria immunization and tuberculosis study presented in the scientific exhibit of this section. This has led to better case finding of communicable disease and I think better reporting of such conditions.

The Love of a Theory.—In rare instances the practicing physician becomes the creative scientist. His imagination conceives of an hypothesis, based on frequent, accurate, well controlled observation. This hypothesis is put repeatedly and rigidly to the test by carefully planned, albeit simple experiments on the human being. Many of the experiments of Harvey, the discovery of Jenner and the work of Laënnec were of this type. But science, for most men, does not progress much beyond the descriptive method, and knowledge is sought and obtained by accurate observations of natural phenomena, recorded with meticulous care, collected, compared, controlled by further observations, subjected to critical analysis, and finally brought to a conclusion uninfluenced by desire or theory. This method results in what is commonly known as experience, a word interpreted in the Middle ages as signifying experiment, and used today by the French to describe experiment. But at times, in experience and during experiments, desire warps judgment, and the love of a theory leads to disaster.—Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

RELATION OF PRIVATE MEDICAL PRACTICE TO PUBLIC HEALTH IN EUROPE

FRANK G. BOUDREAU, M.D.
GENEVA, SWITZERLAND

The relationship of the doctor to the public health is of the most vital concern at the present time; vital to society because national vitality is conserved and increased by adequate medical care; vital to the doctor because his professional welfare, his economic position and his personal well-being depend largely on the nature of that relationship. No one here would deny that the rights of society come first, the whole being greater than any of its parts. Nevertheless, society, in its own interest, owes to the doctor the right to practice his profession in conditions which provide for the best treatment for his patients and a position of dignity and of decent living for himself. That the relationship of the doctor to society is not in a satisfactory position must be apparent to the most casual observer. In America there has been set up a Committee on the Costs of Medical Care to inquire into this subject. The belief is general that certain classes of society, even in times of prosperity, are not fully provided with that degree of medical treatment, prophylactic and curative, which the advances of medical science have placed at the disposal of mankind. Large numbers of doctors, potentially capable of supplying such treatment, find themselves with idle hands and empty purses. Patients are unable to pay for adequate medical attention, while many doctors work desperately hard for a mere pittance. In America the cry is that the family doctor is passing away, while in Europe the doctor fears that the private practice of medicine is disappearing. It is obvious that the relationship of the doctor to the public health, to the state and to society is a subject of the greatest current importance and interest.

The increasing difficulty and complexity of that relationship are due, on final analysis, to the advances in medical science. Doctors and their colleagues in the allied sciences, in private practice, in salaried positions and in research laboratories have built up that body of knowledge which, with the growth of civilization, the state attempts to utilize for the public benefit. Advances in medical science have brought about an increasing specialism with its attendant problems. The need is felt for a recasting of the whole scheme of medical education, to endow the doctor with some part of the new body of knowledge and to fit him for proper performance of his public duty. The practice of medicine has long ceased to be a matter affecting only the doctor and his patient. It has become the concern of the state, which may adopt a policy of noninterference when all goes well, but which must take a hand when deficiencies of method or inequalities of application affect the public welfare.

POLICY OF EUROPEAN GOVERNMENTS REGARDING MEDICAL TREATMENT

Any student of public health and medical work in Europe must be struck with the importance which governments and the public attach to the liberal provision of medical treatment. The practice of medicine, or the adequate treatment of the sick, is considered to be the foundation on which rests the whole structure of public health work. Newman[1] spoke of the medical practitioner as our "first line of defense against disease." Such a potentially capable agent of society "cannot escape definite relationship with the existing system of public medical responsibility or fail to answer to the call of a wider sphere. For in whatever direction we look we find an ever-increasing burden of professional duty imposed upon him, with an ever increasing responsibility to his colleagues and to the state."

---

* Read before the Joint Meeting of the Section on Practice of Medicine and the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

Believing that the primary public health problem is the early diagnosis and proper treatment of disease, European governments have adopted and enforced legislation for the public provision of medical treatment which has brought the doctor into a new and important relationship with the government. This tendency has its roots in the past. Beginning with the provision of casual medical relief for the destitute, it has developed and extended until a wide variety of medical treatment is offered freely to the public. The lesson that sickness is a disaster to the weaker classes of society, involving them in social and financial difficulties which the state ultimately will have to relieve, has been paid for dearly and is now fully appreciated.

PROVISION OF MEDICAL ASSISTANCE BY MEANS OF SICKNESS INSURANCE SCHEMES

If European governments concern themselves actively in the treatment of the sick, they do so indirectly so far as the largest groups of population are concerned, by means of sickness insurance. Social insurance is at present widely extended in Europe because of the public desire to protect the weaker classes—wage-earners, employees and their dependents—from sickness, invalidity and privation. It is a popular movement which has developed slowly throughout the years. With the growth of representative government and a developing humanitarianism, its pace has become much accelerated, and today sickness and invalidity insurance, its chief manifestations, are found in practically every European country, as well as in a number outside of Europe. Sometimes willingly, often protestingly, the medical practitioner has been drawn into the movement. No opposition offered by the medical profession has succeeded in halting its progress. Nevertheless, the medical provisions of sickness insurance have been modified and bettered at the suggestion of doctors organized into professional groups, and sickness insurance has succeeded best where it has had the loyal cooperation of a strong, highly trained medical profession.

I have stated that sickness insurance is a popular movement and that it is of ancient origin. Taking the Netherlands as an example, one finds that sickness clubs existed there as early as 1603 in connection with the guilds.[2] It had a similar origin in most of the countries in Europe. In its modern form sickness insurance dates back to 1883, when the first act legalizing it was passed in Germany. In the postwar period it took on new life, sweeping across Europe and extending overseas. There are two main forms of sickness insurance, the compulsory and the voluntary. In the compulsory form the law obliges persons following certain occupations or within certain income limits to join a sickness fund. This form is found in Germany, Austria, Hungary, Luxemburg, Norway, Yugoslavia, Great Britain, Russia, Czechoslovakia, Poland, Bulgaria, Portugal, Greece, France, the Netherlands, Chile and Japan.[3] However, the proportion of the population coming under the insurance scheme varies widely in these countries. In the voluntary form, no person is forced to join a sickness fund, but the state usually encourages the funds by various means, such as bonuses in respect of each member. This form is found in the Argentine, Belgium, Denmark, Finland, Spain, Sweden and Switzerland.[4] The tendency is for compulsory to follow voluntary sickness insurance. France is the latest convert to this system. Sickness insurance is only partial in Italy, where it is restricted to tuberculosis. It is but slightly developed in Spain. With these exceptions, it may be said that well developed schemes of sickness insurance are found in every important European country.

The object of sickness insurance is to spread the risk of illness among the socially weaker classes over a sufficiently large group, so that the cessation of earning power and the cost of treatment do not prove disastrous to an individual. The provision of medical treatment is its most important result. As the weaker classes of society are incomparably the most numerous, sickness insurance has inevitably made its influence felt in medical practice. More than three fifths of Germany's total population belong to sick funds or are entitled to medical treatment as the dependents of insured persons; 30,000 doctors, or 80 per cent of the whole number, work for the insurance funds, and for the great majority this work is the principal source of their income.[5] There are approximately 15,000,000 insured persons in Great Britain. Of the 7,600 doctors in Czechoslovakia, about 5,000 work for the sickness funds. Almost exactly half of the population is insured. In 1927, the medical profession received in fees from the sickness funds the sum of 238,000,000 crowns (over, $7,000,000).[6] In Denmark over 66 per cent of the entire population between the ages of 14 and 62 belong to sickness funds. Practically the entire wage-earning population of the Netherlands belongs to societies of medical help. About 50 per cent of the wage-earners in Belgium are insured. More than a fourth of the entire population of Hungary belongs to sickness funds; in Budapest the proportion is 80 per cent. As a rule, the insured proportion of the population declines in countries that are predominantly agricultural (Denmark is an exception), so that in Poland th[illegible] and in Yugoslavia only 3.5.[7]

[illegible] of sickness insurance is usually in the hands of sickness funds or societies made up of wage-earners and representatives of the employers. These are autonomous as a rule, state intervention being restricted to a varying degree of administrative and financial supervision. The resources of the funds are obtained by contributions from the members and employers with varying but usually limited financial participation of the state.

The benefits of sickness insurance vary not only from country to country, but also within a country. As a rule there are certain mandatory and a number of permissible benefits, the latter offered at the discretion of the individual funds. There is no legal obligation to give benefits to dependents of the insured, but on the continent the practice is general and is extending rapidly.

---

[1] Newman, George: Quart. Bull. Health Organization, League of Nations, vol. 1, no. 1, 1932, p. 8.

[2] Newsholme, Arthur: Prevention and Treatment of Disease, Baltimore, Williams & Wilkins Company, vol. 1, 1932, p. 23.

[3] Compulsory Sickness Insurance, International Labor Office, Geneva, Switzerland.

[4] Voluntary Sickness Insurance, International Labor Office, Geneva, Switzerland.

[5] Goldmann and Grot'ahn: Benefits of the German Sickness Insurance System, International Labor Office, Geneva, Switzerland, 1928.

[6] Personal communication.

[7] These data are taken from Newsholme (footnote 2, vols. 1 and

Sickness insurance benefits are of two kinds: cash and medical, the latter word being used in its broadest sense. The cash benefit, usually amounting to one half of the basic wage, is paid for a varying period, in general about half a year if the illness lasts so long. In Great Britain medical benefit is limited to the treatment which a general medical pactitioner may reasonably be expected to give, but as a rule there is no such limitation on the continent.

Taking Germany as the classic example, the following is a list of the benefits which the insured may receive:[5]

Cash benefits.
Treatment by a general practitioner.
Treatment by specialists.
Hospital treatment.
Treatment in other institutions, such as convalescent homes, establishments for physical therapy and sanatoriums.
Use of such aids to diagnosis as the x-rays and laboratory examinations.
Dental treatment.
Supply of medicines, special drugs and diet, medical and surgical appliances.
Payment of allowance to the expectant mother and antenatal medical supervision.
Provision for attendance of midwife or doctor on confinement; care in maternity home if necessary.
Provision for after-care of mother and baby, including cash benefits; nursing benefit, to enable her to nurse her baby; proper food and, if necessary, treatment in a convalescent home.
Domestic help for mothers during confinement.

This is a summary list of the benefits accruing to the insured. It is not exhaustive. The dependents of insured persons receive most of these benefits, although benefits in cash are not paid to dependents. In 1925, more than 850,000 mothers in Germany received benefits on a more or less extensive scale from the various sickness funds, which contributed toward the expenses of nearly two thirds of the total births.

In providing the opportunity of complete medical treatment to such large groups, sickness insurance has become the main support of hospitals and other medical institutions, and has subsidized many forms of health work. In many European countries it determines the amount of the doctors' earnings and influences their distribution, so that an international conference on rural hygiene, convened last year by the League of Nations, decided that the best way to insure a sufficient supply of doctors in rural districts was to bring all agricultural workers within its scope.[8]

The contributions of sickness insurance are: social, preventing the disintegration of the family while the wage-earner is incapacitated; medical, providing the treatment necessary to restore health and working capacity, and prophylactic, which in addition to adequate medical treatment includes rest for the expectant mother before and after confinement, encouragement for her to nurse her baby and a variety of measures for infant and child welfare, tuberculosis and the venereal diseases. So strong are the sickness funds that of the three agencies concerned in certain branches of health work, the public authorities, private health agencies and the funds, the last often makes the greatest contribution.

RELATIONSHIP OF THE DOCTOR TO SICKNESS INSURANCE

The relation between sickness funds and doctors has not always been a happy one. There are, no doubt, many causes of friction which might be eliminated by judicious reforms. It would be unfair, however, to make a comparison between existing insurance medical practice and our conception of the ideal. Sir George Newman has said recently that contract practice was the forerunner of the English system of insurance, and when we consider the present insurance scheme we must compare it with the previous contract practice, the evils of which are well known to all of you.[1] In 1930, the British Medical Association went on record as favoring "The inclusion under the National Health Insurance service of the dependents of insured persons, provided that such an extended service include adequate safeguards respecting remuneration and conditions of service."[9] The adoption of this recommendation would bring at least 80 per cent of the total population of Great Britain within the insurance scheme.

While the doctors in some European countries frequently express dissatisfaction with the workings of sickness insurance, the belief is general that the conditions would be worse without it. In England the conditions of medical practice under insurance are determined by negotiation between the ministry of health and the medical profession. In many European countries the strong sickness funds negotiate directly with the doctors, who are in a relatively weaker strategic position. Moreover, this is apt to lead to great diversity of practice. In Germany, for example, doctors may be paid for each visit, they may receive a capitation fee per insured person, these capitation fees may be pooled and each doctor receive so much per visit, payment may be in respect of each case, fixed salaries may be paid or the doctors may be employed on a whole-time basis. In England, the doctor receives a capitation fee per insured person, and any licensed doctor may be inscribed on the panel. In Belgium, doctors may be paid for each consultation, or the insured may go to dispensaries set up by the funds. The dispensary system of treatment is highly developed in Poland, Czechoslovakia and Hungary, where the doctors are paid so much per hour.

The free choice of doctor has been a bone of contention between the doctors and the insurance funds. It is slowly gaining ground, and may be found in England and Switzerland and partially in Belgium, Denmark, Germany and Austria.

In Denmark, the doctors are apparently well satisfied with the insurance scheme. During a recent visit I talked with a number of them and their only complaint was that the less stable classes, who were often treated and left without payment, were not forced to come into the scheme. Danish doctors try to persuade their patients to join an insurance fund, while in the Netherlands many of the funds are organized by the doctors themselves. The medical provisions of the sickness insurance act in France were vigorously combated by the medical profession, with the result that important modifications were introduced. In its present form the law is not opposed by the organized medical profession, although a minority refuses to cooperate.

The limits of time and space do not permit me to discuss in detail the difficulties that have arisen between insurance funds and doctors, nor can I deal with the evils alleged to arise from the practice of sickness insurance. The whole subject has been discussed impartially and wisely by Sir Arthur Newsholme in his recent book "Medicine and the State." Those who wish for accurate information as well as shrewd analysis and constructive suggestion in regard to the practice of medicine, public health administration and sickness insurance will do well to consult this book as well as the three volumes of studies of European countries, which preceded it.[10] For complete information on sickness insurance I refer you to the publications of the International Labor Office, in which all the facts are recorded. But I cannot leave the subject without calling attention to certain medical advantages of sickness insurance not previously mentioned. It has mobilized large sums for the payment of medical fees from classes of the population not otherwise able to pay; it has limited its payments for medical treatment to qualified practitioners, thus discouraging quackery. It has stabilized the income of physicians. In times of depression it has provided fees for doctors which otherwise they would have been unable to obtain, and the major part of its resources is devoted to payment for medical treatment.

---

[8] Report of the European Conference of Rural Hygiene, Health Organization, League of Nations, vol. 1, 1931, p. 21.

[9] Newsholme, Arthur: Medicine and the State, Baltimore, Williams & Wilkins Company, 1932, p. 132.

Since it is agreed by most authorities that large groups of the population cannot afford the immediate cost of that complete medical treatment which the advances of medical science have placed at our disposal and that some of its cost must come from the proceeds of taxes, the value of a contributory scheme seems to be beyond question.

No matter what our individual views may be, it cannot be denied that sickness insurance is spreading rapidly. Its development in any given state may be summed up in a few words; growth of friendly societies, legislative recognition of their value and importance, attainment of full-fledged voluntary insurance with government encouragement and supervision, realization that those who need it most do not join the sickness clubs and the adoption of the principle of compulsion. In view of the fact that doctors often favor sickness insurance but object to medical benefit, it may be of interest to note that in the Irish Free State the highly developed system of public medical assistance provides home and institutional treatment for almost half the population in some districts. It is, in the main, a dispensary system supported by public funds, and medical treatment of the insured does not come within the scope of the insurance scheme in Ireland.[11]

THE MATERNITY SERVICE

Another indication of the fact that European governments consider medical treatment of fundamental importance in public health promotion is the large public provision they have made for maternity. The general practice is the provision of midwife service and, if necessary, of the services of a doctor for all pregnancies. I do not mean to imply that all such service is free. As a rule, payment is exacted from those able to pay. But the governments provide for the appointment of a sufficient number of salaried and official midwives to insure that their services may be everywhere available. Institutional treatment for maternity, much of it at the public expense, is becoming a common practice.

The virtual monopoly of normal obstetrics in Europe by the midwife is striking. In Great Britain over 60 per cent of births are attended by midwives. The proportion is about the same in the Netherlands, which has a well organized midwife service. Candidates for the service are carefully selected and trained; the government pays for their education and maintains them during their training; it also restricts their number.[12]

In Denmark,[12] district midwives are appointed, and the government requires their services to be everywhere available. They attend nearly all normal deliveries even in the upper classes. In Sweden [12] there are apparently more midwives than doctors; half of them are salaried officials, and they attend a large majority of all births. The system is about the same in Norway, where in 1927 midwives attended more than 90 per cent of the total of more than 50,000 births. The puerperal death rates in the Scandinavian counties and Holland are remarkably low, not usually exceeding 3 deaths from all causes per thousand live births. As a rule, midwives are not permitted to use forceps. Moreover, a doctor is almost always at their call. In Norway, the midwife works under the district medical officer. In Prussia, nearly 90 per cent of births are attended by midwives.

The practice of medicine in Europe must be profoundly affected by the presence of such large numbers of well trained midwives, by their appointment as salaried officials and by the custom of calling midwives for nearly all confinements. The result is that the ordinary practice of medicine does not include normal obstetrics. The low rates of puerperal mortality in countries with a well organized system of midwives does not necessarily reflect any discredit on the doctor as an obstetrician. My view is that it demonstrates the value of making available skilled obstetric service throughout the country and to all classes without regard to their financial resources. Sir Arthur Newsholme's views are summed up in the following statement:

"There is exceptional safety in childbirth the care of which is undertaken by trained midwives, who have skilled medical help available when complications render this necessary." He also stated: "Thus the international practice in virtue of which midwives care for the vast majority of normal confinements in Europe is associated with an exceptionally favorable maternal experience." [13]

THE NOTIFICATION OF TUBERCULOSIS

Two important public health problems of great interest to the medical practitioner are tuberculosis and the venereal diseases. The practicing physician is usually concerned with the campaign against tuberculosis in two of its aspects: the notification of the disease and its treatment by the public authorities. It is notifiable in Great Britain, where specialists, often whole time, are employed by the local authorities as tuberculosis officers. In France its notification is facultative; the Academy of Medicine favors obligatory notification, but the ranks of the medical profession resist. This is bound up in France with professional secrecy or the "medical secret," which the profession considers should bind its members. The doctors even object in principle on this ground to the certification of causes of death, and in consequence vital statistics in France are incomplete. This difficulty has been gotten over in some French departments by the adoption of the Swiss system, in which certification of the cause of death is absolutely confidential and separate from the certificate attesting to the fact of death. In Switzerland, the doctor is required to notify cases of tuberculosis which are a public danger. There is compulsory notification of tuberculosis in some German states. It is not notifiable in the Netherlands. In Denmark, respiratory tuberculosis is a notifiable disease.

---

[10] Newsholme (footnote 2), based on studies carried out on behalf of the Milbank Memorial Fund.

[11] Newsholme (footnote 9, p. 141).

[12] Most of these data are taken from Newsholme (footnote 2).

[13] Newsholme (footnote 9, pp. 170 and 171).

The notification of disease in the Scandinavian countries is worthy of special attention. There is immediate notification of certain diseases, while weekly or monthly notification of all new cases seen by the doctor is required. No names or addresses are given except for patients with infectious diseases. The doctor receives no payment for these returns; indeed, compensation for notification of disease appears to be restricted to England and one French department.

The system of vital statistics in Scandinavia is altogether admirable. Any one who wishes to study the movement of disease over long periods of time must turn to these countries, where he will find by far the oldest and most complete records. The success of the system is largely due to the loyal and unselfish cooperation of the medical profession.

THE TREATMENT OF TUBERCULOSIS

Antituberculosis dispensaries are multiplying rapidly in European countries. Some figures for 1928 will give an idea of their number.[14] In that year there were 655 in England and Wales, 202 in Poland, 242 in Italy, 2,089 (1926) in Germany, 640 in France and 70 in Austria. As a rule, no treatment is given by these dispensaries, which are intended mainly f [illegible] preventive social work. In Belgium, [illegible] saries are in the hands of a private health agency, treatment is given, but there has been no friction with the doctors. In Italy there is compulsory sickness insurance against tuberculosis. All those who are insured against invalidity and old age must join, and the scheme also includes the family of the insured. In Hungary and Poland persons with tuberculosis are treated at sickness insurance dispensaries and university clinics. In the cities of Europe, antituberculosis dispensaries are in charge of specialists, and this is true also in rural districts to an increasing extent.

The first establishment of such dispensaries was opposed by the medical profession in many countries, and this was true also of the gradual displacement in their management of general practitioners by specialists. This opposition has died down, and private practitioners now utilize such dispensaries to an increasing extent. Such is the case in France, where the present dispensary system of dealing with tuberculosis was originated by Calmette at Lille in 1905. The development and extension of the system aroused much controversy, the medical syndicates desiring to have the dispensaries controlled by local general practitioners, who would take turns in attending them. This position was untenable, and specialists now direct the dispensaries.

At this point I must refer to the decision of an international conference on rural hygiene which met last year at Geneva. There were official delegations, most of them including doctors, from twenty-three European states. The conference adopted the following resolution, which had been prepared by a committee consisting of three representatives of medical associations from France, Germany and Spain and six other members.

> The rural population and rural doctors should be in a position to utilize the services of centers of diagnosis and if necessary of specialized treatment (for tuberculosis and venereal diseases); such centers should be suitably equipped and provided with a qualified staff.
>
> These services should maintain liaison with the patient's physician, who should be informed of the results of the examinations, or, if necessary, kept in touch with the treatment and its results.

This resolution may be regarded as the official doctrine in Europe.

I wish to make one further comment in closing the section on tuberculosis. When, under the sickness insurance system, the doctor is paid a capitation fee per insured member he loses nothing when he refers his tuberculous patients to the dispensary, hospital or sanatorium.

THE VENEREAL DISEASES

The notification of venereal diseases is not general in Europe, but it is a fairly common practice to require the doctor to notify patients who discontinue treatment before its completion. Sweden, Hungary and Norway, where notification is compulsory, are exceptions. On the other hand, free treatment of venereal diseases is fairly common and is rapidly gaining ground. Denmark is the classic example, for here it began in 1790 and has continued and extended ever since. Every one in Denmark, regardless of class or resources, has the right to free treatment. Such treatment is part of the official duty of salaried district medical officers, of whom there are 70. There is, however, still some treatment of patients by private practitioners. Sweden has followed the example of Denmark. There are polyclinics with specialists attached in all towns with populations in excess of 20,000. In the rural districts treatment is given by the district medical officers. In both Denmark and Sweden the right to free treatment is accompanied by the obligation to pursue treatment, and penalties for discontinuing treatment are enforced. The compulsory notification is followed up by attempts to locate the source of the disease. These were successful in 60 per cent of a large series of cases. Private practitioners do not object to the polyclinics, as the publicity attached to them is said to stimulate a large amount of remunerative private practice. The prevention of venereal diseases in Belgium is based largely on the cooperation of the medical profession, 27 per cent of whom are entitled to receive supplies of arsenicals without cost. Doctors who treat such patients gratuitously are expected to report them and to accept possible supervision by a government medical inspector. Private exceeds public treatment of patients with venereal diseases, and no friction has been created. There has been no general adoption of gratuitous treatment by the German states, as 80 per cent of the cases come under the insurance scheme. The multiplication of centers for treatment in Berlin aroused the opposition of the medical profession.

Newsholme stated that the medical profession in England "has cordially accepted the principle of the gratuitous treatment, at clinics supported from public funds, of all applicants who have a venereal disease."[15]

In Italy the law requires the chief town of each province and all towns over 30,000 to be provided with antivenereal dispensaries. Hospitals are required to treat patients with the disease in the infectious stage, and the state pays the cost of such treatment.

In France the state has provided large sums for antivenereal work, and dispensaries have been established all over the country. There is much free treatment, but patients able to pay are expected to do so. Private practitioners may treat such patients at the public expense under regulation.

This brief summary shows that the public authorities in Europe are rapidly becoming convinced of their responsibility to insure effective treatment for persons with venereal diseases. Such treatment is regarded as the best means of prevention, and free treatment, as a means to this end, is rapidly becoming more common.

---

[14] These data are taken from the International Health Year Book, Health Organization, League of Nations, 1928

[15] Newsholme (footnote 2, p. 214).

INFANT WELFARE WORK

Maternal and infant welfare dispensaries or consultations are found in most European countries. They are organized by the public authorities, sickness insurance funds and private health agencies. The following figures give some idea of their numbers.[14] In 1928, there were 4,050 in France, 2,769 in England and Wales, 450 in Belgium, 446 in Germany, 218 in Poland, 177 in Hungary and 110 in the Netherlands. In cities these consultations are usually in charge of specialists, but in rural districts the majority are under the direction of private practitioners. As a rule, no treatment is given, patients being referred to their family doctors, so there has been little friction with the medical profession. There is one notable exception to the rule that no treatment is given by such centers: in France and a number of other countries B C G is administered.

The centers I have been discussing are really well-baby centers. It is unlikely that much of this work would find its way into the hands of general practitioners in any case. It is physiologic rather than pathologic and preventive rather than curative. The same holds true of the treatment of defects found as a result of school medical inspection, which is the concern of specialists rather than of general practitioners.

MEDICAL INSPECTION OF SCHOOL CHILDREN

Medical inspection in the schools is fairly well established in the larger European cities, but is much less developed in the rural districts. In England and certain parts of Germany it is highly developed. As a rule, the inspections are carried out by private practitioners who are paid for part-time work. There is a tendency in some countries to replace the part-time practitioner with the official whole-time school medical inspector. This has led to some friction with the medical profession, notably in Belgium and Germany. The educational authorities in England provide treatment for which a small charge is made, but on the continent the children requiring treatment are referred to private doctors, hospital dispensaries or insurance fund polyclinics. It may be of interest to point out here that in three Swiss cantons sickness insurance for primary school children is compulsory. There is limited free choice of physician, and the children go to the doctor's office or are visited in their homes. Disputes over the scale of fees have occurred between the doctors and the funds, but this is now adjusted. A similar law is proposed in Yugoslavia. The combination of such a scheme with an efficient system of school medical inspection would go far to solve the problem of school hygiene. There is one exception to the statement that in Europe no treatment is given by school medical inspection systems; school dental clinics are common and do much work, but have aroused little opposition.

IS THE DOCTOR EQUAL TO THE TASK ENTRUSTED TO HIM BY SOCIETY?

It has been shown that a heavy responsibility is placed on the doctor by the public authorities in the majority of European countries. The work of the doctor is the key to the success or failure of sickness insurance funds, which he can seriously damage by overcertification of illness and perfunctory treatment or foster by a steady adherence to his difficult duty. His is not the only responsibility; it is shared by the insured, who must understand the aim of group insurance if it is to be successful. I believe that a large majority of the medical profession fully lives up to all that is expected of it within the limits of its own possibilities. It is only a small minority which is responsible for abuses.

Does the doctor in his daily practice apply the most modern principles of treatment and prevention? This, of course, is a counsel of perfection; nothing so ideal can be expected of human beings. It is said that the preventive results of sickness insurance which were confidently expected in England and other countries have not been fully realized. If this be true it is not altogether the fault of the doctor, to whom society owes certain facilities for medical practice, suitable material conditions, proper equipment and adequate public provision for relief and institutional care. Moreover, the doctor's training may not fit him for the important part he is to play in the complicated organization of modern society.

As a result of a number of requests, the League's Health Organization has set up a committee on medical education, and as a first step has obtained from a few medical leaders in Europe reports on the training of doctors in the several countries. Dr. G. Roussy, dean of the Faculty of Medicine in Paris, wrote:[16] "Nothing, in practice, is done to prepare the doctor for his social duties. The reform of medical education is the order of the day in all countries. It is imperative for the following reasons:

"(1) The evolution and constant progress of medical science;

"(2) The new trend of modern medicine which has hitherto been essentially curative, but which is becoming to an ever increasing extent, preventive and social."

According to Prof. J. Tandler of Vienna,[17] "Complaints regarding the inadequacy of medical training and the consequent proposals for reform in this field were already heard before the war and have since become clamant." After discussing these proposals, he said: "All the reforms suggested up to the present will, however, prove inadequate, unless the need is realized of familiarizing a doctor with the social structure of the society in which he lives." Dr. Carl Prausnitz,[18] director of the Social Hygiene Academy at Breslau, noted that "a revision, and extension of (medical) training is long overdue." Sir George Newman,[2] chief medical officer of the ministry of health and board of education in England, pointed out that in medical education, "The preventive aspects of medicine are sometimes neglected. It is assumed that prevention and prophylaxis is the function of the public medical officer and is necessary only for a diploma in the public health field. There never was a greater misapprehension."

These quotations give a partial answer to my question; there is evidently a somewhat general feeling that the present methods of medical education do not adequately prepare the doctor for his heavy social responsibilities.

The League's Health Organization has also convened conferences of directors of schools of hygiene from time to time. These, while concerned primarily with the training of medical officers of health, have adopted recommendations on the public health instruction of

---

16. General Conclusions on Medical Education in France, Quart. Bull. Health Organization, League of Nations, to be published.

17. Tandler, J.: Reform of Medical Training in Austria, report submitted to the Health Organization, League of Nations.

18. Prausnitz, Carl: Medical Education in Germany, report submitted to the Health Organization, League of Nations.

medical students, for, in the words of the directors:[19] "It is to the main body of general practitioners that the public must look for personal guidance in the prevention and detection of disease." The recommendations, too detailed to reproduce here, insist that every professor in medical schools should "constantly emphasize the preventive aspects of his particular subject; this aspect should, in fact, pervade the entire medical training." Practical experience for the student in the various branches of dispensary and social work is also recommended. Refresher courses in preventive medicine are advised for the general practitioner as well as for the part-time medical officer of health.

I have made no reference to conditions in Soviet Russia, because I have never visited that country. I am told that it is the intention of the government to wipe out private medical practice and to replace it by salaried state doctors. Even now private practice has almost completely disappeared. The complete reform of medical education is of some interest. The old type of medical school no longer exists. It has been replaced by the following three faculties:

1. Therapeutics and prevention.
2. Hygiene and sanitary technic.[19]
3. Maternal and infant welfare.[20]

It is the hope of the Soviet government that these new faculties will turn out doctors suited to the work they will be required to do. I offer this information without comment.

In presenting these facts about the doctor and his relation to the public in Europe today, I have tried to be as objective as possible. I have omitted many facts and may have overemphasized certain others; I do not claim to have given a complete picture. It would be dangerous to attempt to draw any general conclusions, and I propose to restrict my concluding comments to a few brief statements.

In the principal European countries today, society is recognizing to an ever increasing degree its public responsibility for the health of all classes.

The public authorities are laying increasing emphasis on the adequate provision of medical treatment as the basis of the public health.

The private practitioner is being drawn yearly into a closer relation with the government and its public representative authorities.

No difference of opinion can be held as to these facts.

This change in the relationship between society and the doctor has from time to time created friction and dissatisfaction, usually most intense at the beginning of any social or medical reform. This dissatisfaction has died down, as a general rule, with the passage of time and the introduction of modifications suggested by practical experience.

The least dissatisfaction is found where the medical profession is conversant with public social and medical problems and is united into strong but not narrow professional groups, and where the public authorities keep the doctors in touch with the purposes of their proposals.

In the countries where society has made the greatest demands on the doctor, where the old forms of private practice have most diminished and, if you will, where the socialization of medicine has made the greatest progress, the moral and material position of the doctor has not visibly suffered. On the contrary, he is often more highly regarded and his reward is relatively greater in proportion to the heavier but more honorable social responsibilities which he has been called on to assume. "For it is true today as it has never been true before that one can serve himself only by serving the community. The social outlook and socialized behavior are demanded of contemporary man not merely, nor even primarily, on grounds of justice and mercy, but of the most self-centered and materialistic wisdom."[21]

EFFECT OF KNEE-CHEST POSITION AND POSTURAL EXERCISES ON POSTPARTUM RETROVERSION

GOODRICH C. SCHAUFFLER, M.D.
PORTLAND, ORE.

Clinical observation of the results of measures empirically prescribed to curb postpartum retroversion suggested that this empiricism might be without basis in fact. Therefore controlled observations were started.

Certain factors appear to favor the production of postpartum retroversion. The tendency toward descensus inherent in the mechanism of labor weakens the supports of the uterus and draws it down, swinging the corpus into a type of retroversion that is identical with early prolapse.

Following delivery, the uterus is normally in a position approximating first degree retroversion. Theoretically, this tendency is increased through the dorsal posture of the patient in bed, which is more or less routine. The natural tendency of the heavy corpus to drop back against the sacral promontory is thus accentuated.

Subinvolution increases this tendency. The size and weight of the congested uterus (with the patient on her back) work against the normal tendency toward anteversion exerted by shortening of the anterior uterine wall and contraction of the round ligaments.
These two factors are a part [illegible] nal involution.
The persistence of subthreshold [illegible], injury to the
cervix, and retained secundin [illegible] heir resultant
congestion, are factors that [illegible] these [illegible] l
restorativ [illegible] ianisms.

One v [illegible] urally suppo [illegible] a
favorin [illegible] ing forwar
would a [illegible] ral forces.
especial [illegible] xert an a
help to [illegible] nsus. T
only as [illegible] l forces
and ai [illegible] g con
nately, [illegible] is in t
nite a [illegible] ntrad
has be [illegible] utic

IN

The [illegible] l
based
mately
assistan
ment o
Medical

---

[19] Report on the Conferences of Directors of Schools f Hygiene, held in Paris and Dresden during 1930, Health [illegible] eague of Nations.

[20] Rev. d'hyg. et de méd. sociales, Dr. A. R [illegible] April, 1931.

[21] Fairc [illegible]
p. 641, no.

From th [illegible]
School.

Read be [illegible]
cologists, J.

suggested on the ground that the reported observations are the result of a single examination. However, it was found inadvisable to use statistics from subsequent examinations for purposes of this study, since more effective measures were immediately instituted to control retroversion. I refer to replacement, the use of pessaries and decongestive measures, all tending to obscure later observations. Doubtless, in some instances, spontaneous corrections would have been noted later. It is generally conceded that, barring abnormal factors, involution and return to the normal anterior position should have occurred by the sixth week. Therefore, our report is based on examinations made at this time.

NUMBER OF CASES

I wish to emphasize, first, that 169 cases comprise a small group on which to base conclusions. It is, however, a sufficient number to warrant comment and should successfully upset dogmatic teaching based apparently on speculation and argument from analogy. Certainly there is little in the nature of controlled experiment to support current teachings.

TYPE OF CASE

The cases that constitute the basis of this study were taken from consecutive deliveries at the Salvation Army White Shield Home. The patients were nearly all vigorous young women (about 90 per cent primiparous) and presented a group practically free from complicating factors such as retroversion from previous pregnancy, prolapse, and the like. The only considerable complicating factor consists in possible congenital or traumatic retroversion. The incidence of such conditions should be equal in our test and control groups and therefore is negligible in this study.

SELECTION OF CASES AND TYPE OF EXERCISES

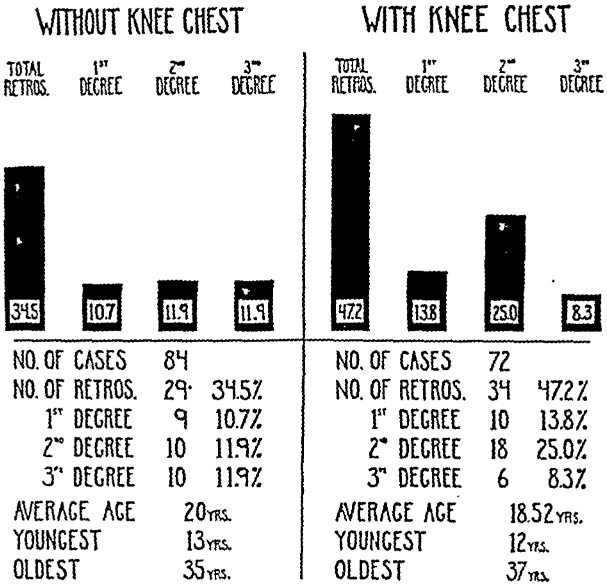
Patients were numbered in the order of their delivery. Alternate patients (odd numbers) were put on a special regimen consisting of the ventral posture in bed, and the knee-chest position beginning on the eighth day post partum and increasing to twenty minutes twice a day. On the eighteenth day they were started on the camel walk, and instructed to rest as nearly as possible entirely on the abdomen while in the prone position. Conservative abdominal exercises in the upright posture were also prescribed. As far as possible, these procedures were supervised. Naturally, some patients were less faithful than others, but on the whole it would be difficult to obtain a better regulated and supervised group.

The even number patients were given no exercises whatever, and no instructions in regard to prone posture, and were directed not to undertake any such measures on their own initiative.

EFFECT OF KNEE-CHEST POSITION

The accompanying chart shows that the incidence of retroversion following the use of the knee-chest position has been 47.2 per cent as opposed to 34.5 per cent in the cases in which the knee-chest position was not used. There is room for a certain variation due to chance in as small a group of cases as this. However, there can be no question that the value of such exercises as described has been in the past vastly overestimated. Perhaps it is unfair to conclude from this series that the use of the knee-chest position actually increases the incidence of postpartum retroversion. On the other hand, the confidence that has always been placed in it as a therapeutic measure is no longer justified. It seems fair to conclude also that, since in this type of case postural exercises should be the most effective mechanically, owing to the heaviness and size of the corpus, the use of the knee-chest position in other types of retroversion would be even more futile.

If one chooses to put implicit confidence in these figures, then one must search for factors in the use of such exercises that might actually retard involution and favor retroversion. It is conceivable that the trauma due to early movement and disturbance of the pelvic structures with possible retardation of circulatory rehabilitation might act in such a way. It is quite possible that the natural forces of reconstruction may work better with the uterus in the vertical position, splinted by the sacral promontory, than under circumstances in which it is frequently teetered forward into an anterior position (perhaps unphysiologic at this time). As an analogy may be cited the potential harm in too early attempts to obtain complete flexion in an injured joint. These are merely speculations, but they may have some bearing on our rather surprising results.



WITHOUT KNEE CHEST			WITH KNEE CHEST		
NO. OF CASES	84		NO. OF CASES	72	
NO. OF RETROS.	29	34.5%	NO. OF RETROS.	34	47.2%
1st DEGREE	9	10.7%	1st DEGREE	10	13.8%
2nd DEGREE	10	11.9%	2nd DEGREE	18	25.0%
3rd DEGREE	10	11.9%	3rd DEGREE	6	8.3%
AVERAGE AGE	20 YRS.		AVERAGE AGE	18.52 YRS.	
YOUNGEST	13 YRS.		YOUNGEST	12 YRS.	
OLDEST	35 YRS.		OLDEST	37 YRS.	

Effect of knee-chest position on postpartum retroversion.

We feel added confidence in the result of these studies from the fact that check figures during the eighteen months taken for the experiment showed a constantly higher number of retroversions following the use of the knee-chest position. This should eliminate the possibility of a temporary variation due to chance.

The percentages that I have mentioned have been for the entire group of retroversions. It is of interest to note that the majority of retroversions have been second and third degree. This definitely establishes the fact that our observations are not influenced by a large group of borderline cases. If a large majority of these cases had been first degree retroversions there would be considerably more doubt as to the significance of our results. It will be noted in the chart that there is an incidence of 25 per cent of second degree retroversions following the use of the knee-chest position as opposed to 11.9 per cent in cases in which the knee-chest position has not been used. This discrepancy is even more marked than that in the total group. Since the second degree retroversion may be considered the average or the mean of the entire group, these comparative per-medical students, for, in the words of the directors [19] "It is to the main body of general practitioners that the public must look for personal guidance in the prevention and detection of disease" The recommendations, too detailed to reproduce here, insist that every professor in medical schools should "constantly emphasize the preventive aspects, of his particular subject, this aspect should, in fact, pervade the entire medical training" *Practical experience for the student in the various* branches of dispensary and social work is also recommended Refresher courses in preventive medicine are advised for the general practitioner as well as for the part-time medical officer of health

I have made no reference to conditions in Soviet Russia, because I have never visited that country I am told that it is the intention of the government to wipe out private medical practice and to replace it by salaried state doctors Even now private practice has almost completely disappeared The complete reform of medical education is of some interest The old type of medical school no longer exists It has been replaced by the following three faculties

1 Therapeutics and prevention
2 Hygiene and sanitary technic [19]
3 Maternal and infant welfare [20]

It is the hope of the Soviet government that these new faculties will turn out doctors suited to the work they will be required to do I offer this information without comment

In presenting these facts about the doctor and his relation to the public in Europe today, I have tried to be as objective as possible I have omitted many facts and may have overemphasized certain others, I do not claim to have given a complete picture It would be dangerous to attempt to draw any general conclusions and I propose to restrict my concluding comments to a few brief statements

In the principal European countries today, society is recognizing to an ever increasing degree its public responsibility for the health of all classes

The public authorities are laying increasing emphasis on the adequate provision of medical treatment as the basis of the public health

The private practitioner is being drawn yearly into a closer relation with the government and its public representative authorities

No difference of opinion can be held as to these facts

This change in the relationship between society and the doctor has from time to time created friction and dissatisfaction, usually most intense at the beginning of any social or medical reform This dissatisfaction has died down as a general rule, with the passage of time and the introduction of modifications suggested by practical experience

The least dissatisfaction is found where the medical profession is conversant with public social and medical problems and is united into strong but not narrow professional groups, and where the public authorities keep the doctors in touch with the purposes of their proposals

In the countries where society has made the greatest demands on the doctor, where the old forms of private practice have most diminished and, if you will, where the socialization of medicine has made the greatest progress, the moral and material position of the doctor has not visibly suffered On the contrary, he is often more highly regarded and his reward is relatively greater in proportion to the heavier but more honorable social responsibilities which he has been called on to assume "For it is true today as it has never been true before that *one can serve himself only by serving the* community The social outlook and socialized behavior are demanded of contemporary man not merely, nor *even primarily, on grounds of justice and mercy,* but of the most self-centered and materialistic wisdom" [21]

---

[19] Report on the Conferences of Directors of Schools of Hygiene, held in Paris and Dresden during 1930, Health Organization, League of Nations

[20] Rev d hyg et de med sociales, Dr A Roubakine, March and April, 1931

[21] Fairchild, Henry Pratt Harper's Monthly Magazine, May, 1932, p 641 no 984

EFFECT OF KNEE-CHEST POSITION AND POSTURAL EXERCISES ON POSTPARTUM RETROVERSION

GOODRICH C SCHAUFFLER, M D.
PORTLAND, ORE

Clinical observation of the results of measures empirically prescribed to curb postpartum retroversion suggested that this empiricism might be without basis in fact Therefore controlled observations were started

Certain factors appear to favor the production of postpartum retroversion The tendency toward descensus inherent in the mechanism of labor weakens the supports of the uterus and draws it down, swinging the corpus into a type of retroversion that is *identical* with early prolapse

Following delivery, the uterus is normally in a position approximating first degree retroversion Theoretically, this tendency is increased through the dorsal posture of the patient in bed, which is more or less routine The natural tendency of the heavy corpus to drop back against the sacral promontory is thus accentuated

Subinvolution increases this tendency. The size and weight of the congested uterus (with the patient on her back) work against the normal tendency toward anteversion exerted by shortening of the anterior uterine wall and contraction of the round ligaments These two factors are a part of normal involution The persistence of subthreshold infection, injury to the cervix, and retained secundines, with their resultant congestion, are factors that oppose these normal restorative mechanisms

One would naturally suppose that a ventral posture, *favoring a dropping forward* of the heavy corpus, would aid the natural forces The knee-chest position, especially, should exert an anterior tendency and also help to correct descensus Theoretically it should not only assist the natural forces but also improve drainage and aid in eliminating congestion as well Unfortunately, the observations in this study constitute a definite and surprising contradiction to this belief, which has been held as therapeutic dogma.

EXAMINATIONS

The examinations on which these observations are based were made according to our regimen, at approximately six weeks after delivery, by myself with the assistance of Dr Martin S Sichel under the Department of Gynecology of the University of Oregon Medical School A criticism of our conclusions may be

---

From the Department of Gynecology, University of Oregon Medical School

Read before the Portland, Oregon, Society of Obstetricians and Gynecologists *Jan 27, 1932* suggested on the ground that the reported observations are the result of a single examination. However, it was found inadvisable to use statistics from subsequent examinations for purposes of this study, since more effective measures were immediately instituted to control retroversion. I refer to replacement, the use of pessaries and decongestive measures, all tending to obscure later observations. Doubtless, in some instances, spontaneous corrections would have been noted later. It is generally conceded that, barring abnormal factors, involution and return to the normal anterior position should have occurred by the sixth week. Therefore, our report is based on examinations made at this time.

NUMBER OF CASES

I wish to emphasize, first, that 169 cases comprise a small group on which to base conclusions. It is, however, a sufficient number to warrant comment and should successfully upset dogmatic teaching based apparently on speculation and argument from analogy. Certainly there is little in the nature of controlled experiment to support current teachings.

TYPE OF CASE

The cases that constitute the basis of this study were taken from consecutive deliveries at the Salvation Army White Shield Home. The patients were nearly all vigorous young women (about 90 per cent primiparous) and presented a group practically free from complicating factors such as retroversion from previous pregnancy, prolapse, and the like. The only considerable complicating factor consists in possible congenital or traumatic retroversion. The incidence of such conditions should be equal in our test and control groups and therefore is negligible in this study.

SELECTION OF CASES AND TYPE OF EXERCISES

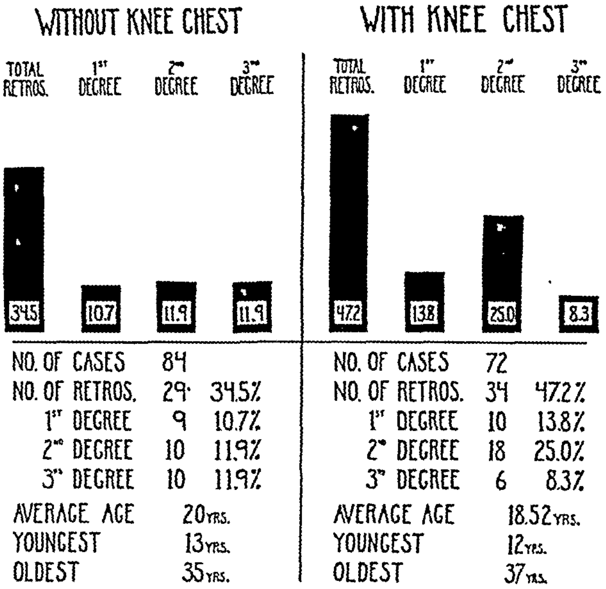
Patients were numbered in the order of their delivery. Alternate patients (odd numbers) were put on a special regimen consisting of the ventral posture in bed, and the knee-chest position beginning on the eighth day post partum and increasing to twenty minutes twice a day. On the eighteenth day they were started on the camel walk, and instructed to rest as nearly as possible entirely on the abdomen while in the prone position. Conservative abdominal exercises in the upright posture were also prescribed. As far as possible, these procedures were supervised. Naturally, some patients were less faithful than others, but on the whole it would be difficult to obtain a better regulated and supervised group.

The even number patients were given no exercises whatever, and no instructions in regard to prone posture, and were directed not to undertake any such measures on their own initiative.

EFFECT OF KNEE-CHEST POSITION

The accompanying chart shows that the incidence of retroversion following the use of the knee-chest position has been 47.2 per cent as opposed to 34.5 per cent in the cases in which the knee-chest position was not used. There is room for a certain variation due to chance in as small a group of cases as this. However, there can be no question that the value of such exercises as described has been in the past vastly overestimated. Perhaps it is unfair to conclude from this series that the use of the knee-chest position actually increases the incidence of postpartum retroversion. On the other hand, the confidence that has always been placed in it as a therapeutic measure is no longer justified. It seems fair to conclude also that, since in this type of case postural exercises should be the most effective mechanically, owing to the heaviness and size of the corpus, the use of the knee-chest position in other types of retroversion would be even more futile.

If one chooses to put implicit confidence in these figures, then one must search for factors in the use of such exercises that might actually retard involution and favor retroversion. It is conceivable that the trauma due to early movement and disturbance of the pelvic structures with possible retardation of circulatory rehabilitation might act in such a way. It is quite possible that the natural forces of reconstruction may work better with the uterus in the vertical position, splinted by the sacral promontory, than under circumstances in which it is frequently teetered forward into an anterior position (perhaps unphysiologic at this time). As an analogy may be cited the potential harm in too early attempts to obtain complete flexion in an injured joint. These are merely speculations, but they may have some bearing on our rather surprising results.



Effect of knee-chest position on postpartum retroversion.

We feel added confidence in the result of these studies from the fact that check figures during the eighteen months taken for the experiment showed a constantly higher number of retroversions following the use of the knee-chest position. This should eliminate the possibility of a temporary variation due to chance.

The percentages that I have mentioned have been for the entire group of retroversions. It is of interest to note that the majority of retroversions have been second and third degree. This definitely establishes the fact that our observations are not influenced by a large group of borderline cases. If a large majority of these cases had been first degree retroversions there would be considerably more doubt as to the significance of our results. It will be noted in the chart that there is an incidence of 25 per cent of second degree retroversions following the use of the knee-chest position as opposed to 11.9 per cent in cases in which the knee-chest position has not been used. This discrepancy is even more marked than that in the total group. Since the second degree retroversion may be considered the average or the mean of the entire group, these comparative percentages lend some strength to the hypothesis that there may be factors in the use of the knee-chest position actually antagonistic to normal involution and anteversion.

The percentage of retroversion in this entire group, including tests and controls, is in general accord with other figures for similar groups. I have not, however, found any other critical studies covering this particular field and therefore think these observations worthy of note. Further study in the same field is indicated.

SUMMARY AND CONCLUSIONS

1. Alternate patients (odd numbers) in a group of 169 deliveries were put on knee-chest position and postural exercises, whereas alternate patients (even numbers) were not given such measures.
2. Examination after six weeks revealed a substantially higher incidence of postpartum retroversions in the group subjected to the so-called corrective measures.
3. It is fair at least to conclude that the use of such exercises does not justify the confidence which has formerly been placed in them.
4. It seems wise even to seek for factors in the use of such exercises that may actually retard the tendency toward involution and return to the normal anterior position.

802 Medical Arts Building.

Clinical Notes, Suggestions and New Instruments

CIRRHOSIS OF THE LIVER CAUSED BY CARBON TETRACHLORIDE

Winfield L. Butsch, M.D., New Haven, Conn.

Carbon tetrachloride has a widespread use with apparently little attention accorded to its danger as a toxic agent. Out of this neglect has appeared a case of cirrhosis of the liver similar to the experimental cirrhosis produced in dogs by the same substance. Although there are numerous records of acute yellow atrophy caused by carbon tetrachloride, no instance of liver cirrhosis has been reported in the literature.

The poison was assimilated by the patient through inhalation while at work. Lamson[1] has produced a similar effect by immersing dogs in a concentrated vapor of carbon tetrachloride repeatedly over a period of one month. Autopsy of the animals showed the liver lesion to be one of healing central necrosis with stellate areas of collapsed framework about the hepatic veins. The adjacent liver cells in a wide band contained fat droplets.

Bollman and Mann[2] in their work on experimentally produced lesions of the liver demonstrated that, with repeated sublethal doses of carbon tetrachloride, increasing injury to the livers of dogs resulted in the production of most of the symptoms characteristic of portal cirrhosis. Gastro-intestinal upsets, diarrhea and intestinal hemorrhages were the first symptoms observed. The excretory function of the injured livers was marked by a definite retention of dye.

REPORT OF CASE

An American laborer, aged 54, entered the hospital with complaints of a large abdomen, morning nausea and weakness. Six months previously he had been transferred to a position requiring the cleaning of old telephones with a solution containing 60 per cent carbon tetrachloride and 40 per cent gasoline. This was done in a poorly ventilated room, where the fumes arising from the cleaning solution were unmistakable. He found himself frequently giddy with an aching head toward the close of the day, and often nauseated when he returned home for the evening meal. After he had been at this work for two months, a period of intractable diarrhea which lasted three weeks occurred and his abdomen began to increase in size. Five weeks before admission he developed morning nausea and weakness, accompanied by loss of sexual libido. A dry irritative cough appeared with small amounts of stringy, whitish sputum. All the other men engaged at this work developed symptoms of nausea, dizziness and lack of appetite, and asked to be transferred from time to time. The patient remained on duty.

The patient was large, well developed and well nourished. His complexion was pale. He did not show prostration. The positive observations were limited to the abdomen, which was enlarged and globular with dilated veins coursing over its upper half. Shifting dulness was noted in the flanks, accompanied by a fluid wave. The liver and spleen were not palpable at the time.

The positive laboratory observations of especial reference to this case were as follows:

Van den Bergh test: direct, negative; indirect, 1.1 mg. per hundred cubic centimeters.

Bromsulphalein function test: 50 per cent retention at end of five minutes; no retention at end of thirty minutes.

Blood fat: admission, 1,245 mg. per hundred cubic centimeters estimated as tripalmitin; three weeks later, 765 mg.

Serum cholesterol: admission, 856 mg. per hundred cubic centimeters; three weeks later, 563 mg.

Again the work of Mann on dogs proved to be of great value in suggesting the treatment of the case. In dogs in which ascites developed after experimentally produced cirrhosis, Mann was able to induce the absorption of the ascites with restriction of meat and the feeding of large amounts of carbohydrates. He then could almost at will cause alternately the formation and removal of ascitic fluid by alternating these two foods in the diet.

Accordingly, the patient was placed on a high carbohydrate diet with restriction of all meats. Urea produced a moderate diuresis. At the time of discharge, one month later, he had regained his libido and felt stronger. His abdomen had decreased in girth from 42 to 40 inches. At no time did the patient have a febrile temperature or evidences of clinical jaundice.

He returned for observation at monthly intervals.

One month later he was back at work with his strength returning very slowly. No shifting dulness was noted. The liver and spleen were not palpable. His appetite was poor. Dilated veins were still prominent.

Two months later he felt somewhat stronger though the cough persisted. The liver was palpable 4 cm. below the costal margin in the midclavicular line. He was allowed meat twice a week. The blood fat was 702 mg. per hundred cubic centimeters.

Three months later he felt much stronger and his appetite had improved. The abdominal veins were much less prominent. The liver was palpable 2 cm. below the costal margin. The spleen was not palpable. The abdominal girth was 39 inches. He was allowed meat every other day.

Four months later he was feeling strong enough to work in the garden in his spare time. His appetite was good. The liver was palpable at the costal margin. His abdominal girth was 38½ inches. Since discharge, his weight had remained stationary at 180 pounds (81.6 Kg.). The blood fat was 497 mg. per hundred cubic centimeters.

COMMENT

Although there was no conclusive evidence in this case of a cirrhotic liver, it seems reasonable to presume the diagnosis to be correct in view of the characteristic symptoms and the signs of portal obstruction following close on the exposure to carbon tetrachloride.

In connection with the lipemia, it is interesting to note the observations in a case reported by MacMahon and Weiss,[3] in which an autopsy was performed in a case of acute yellow atrophy in which the patient died five days after the accidental

---

From the Medical Service of the New Haven Hospital.

[1] Lamson, P. D., and others: Bull. Johns Hopkins Hosp. **36**: 107 (Feb.) 1923.

[2] Bollman, J. L., and Mann, F. C.: Ann. Int. Med. **5**: 699 (Dec.) 1931.

[3] MacMahon, H. E., and Weiss, Soma: Am. J. Path. **5**: 623 (Nov.) 1929.

ingestion of carbona. It was found that 64 per cent of the blood in the pulmonary artery and 25 per cent of the blood in the inferior vena cava was fat. Rosenthal and Lillie[4] noted that out of seven dogs given carbon tetrachloride orally one developed a spontaneous lipemia (estimated by the appearance of the blood only).

In view of the frequent use of carbon tetrachloride as a solvent in the dry cleaning and rubber industries and as a general cleaning solution, it is noteworthy that chronic liver injury may occur under conditions in which large amounts are inhaled.

METHOD FOR DIAGNOSIS OF AMEBIASIS

Alfred C. Reed, M.D., and Herbert G. Johnstone, A.B., M.S.
San Francisco

The diagnosis of amebiasis rests solely on the microscopic identification of the pathogenic ameba Endamoeba histolytica. This identification requires special technical skill and experience. An unqualifield technician is entirely unreliable and may be dangerous. Few laboratories and fewer physicians have available a properly qualified and reliable technician. Unless diagnosis can be made properly it is much safer not to attempt it at all.

Furthermore, ordinary stool specimens must be examined for amebic cysts within forty-eight hours as the chromatoidal bodies disappear and the cysts break up, so that positive observations become less as time progresses. A large percentage of patients with amebiasis, even in the absence of diarrhea, show motile amebas, together with cysts or alone. Motile amebas die quickly and only immediate examination of the fresh stool specimen will demonstrate them. It is always desirable to examine a series of specimens, at least covering six consecutive days. If the first tests are negative, the patient should receive epsom salt in small amount with examination of the fresh soft stools. When amebiasis is suspected, sigmoidoscopic examination should be made and swabs taken from ulcers. If no ulcers are seen, mucus or fecal material from the sigmoid wall should be examined directly for amebiasis.

Finally, certain identification of the ameba is best done with the use of the iron hematoxylin stain, which should be a routine procedure in stool examination for protozoa. This staining method is long and complicated and requires special technical skill.

We have found in practice that it is possible to follow a routine method for diagnosis of amebiasis which will obviate all the difficulties enumerated and meet all the requirements for accurate diagnosis. This method depends on the preparation of smears by the attending physician directly from the patient, in such form that motile amebas are preserved as well as cysts, and swab specimens from the sigmoid can be utilized as well as ordinary fecal specimens. These wet smears are sent to a central reliable laboratory for staining and study.

This method has been described by William M. James[1] and was developed on the basis of previous reports and recommendations of Dr. C. A. Kofoid. It is easy for the physician to prepare and keep on hand the few solutions necessary and a supply of proper containers. The method can be summarized as follows:

A small amount of the fresh stool specimen is spread on a clean flamed slide with a paste brush. The strokes should be made parallel to the longer edges of the slide to facilitate microscopic examination. The pressure should be so regulated that the material shall be spread thinly, eliminating all lumpy particles. Approximately 1½ inches of the surface length of the slide should be covered. Before the slide is allowed to dry, it is immersed immediately in Schaudinn's fixing fluid.[2] The slide can either remain for ten minutes in the fixing fluid heated to 60 C. or be kept over night in the fluid without heating. The slide is then placed for ten minutes in 70 per cent alcohol tinged to a wine color with compound solution of iodine. Following this, the slides are placed in 70 per cent alcohol for five minutes and then put in bottles containing 70 per cent alcohol, for mailing. A rubber band should be placed round each end of the slide to prevent breakage. In addition, a piece of absorbent cotton should be packed on the top of the slides to eliminate as much movement as possible. Each slide should be properly marked with a diamond pencil. Pure ethyl alcohol must be used, and at no time should the smears be allowed to dry. The bottle containing the slides is put in a screw top cardboard mailing container and sent to the laboratory to be stained (iron-hematoxylin) and examined.

350 Post Street.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

SQUIBB DEXTRO-VITAVOSE

(Dextrose and Malted Wheat Germ Extract)

Manufacturer.—E. R. Squibb and Sons, New Brunswick, N. J.

Description.—A powdered mixture of dextrose and extract of malted wheat germ and U. S. P. malt; essentially dextrose, maltose, dextrins and "starch intermediate products"; contains vitamins B and G in substantial quantities; packed in tins.

Manufacture.—A mixture of dextrose (65 per cent) and Vitavose (35 per cent). See this section for Vitavose (The Journal, Aug. 6, 1932, p. 477).

Analysis (submitted by manufacturer).—

	per cent
Moisture	1.5
Ash	1.5
Fat	0.0
Soluble protein (albuminoid N × 6.25)	2.7
Soluble amino and other nitrogenous compounds (amino N × 6.25)	2.3
Dextrose *	65.
Reducing sugars as maltose *	15.
Dextrins *	12.
Crude fiber	0.0
Total carbohydrates (by difference)	87.
Iron (Fe)	0.004

* Estimated from analysis of Vitavose and from factory formula.

Calorics.—3.9 per gram; 111 per ounce.

Vitamins.—Vitamin assay shows a content of vitamins B and G at least equal to 30 times and 10 times, respectively, of that of equal weights of fresh raw whole milk.

Claims of Manufacturer.—Intended particularly for the carbohydrate, and vitamins B and G supplement of milk for infants. May be used as a similar diet supplement for children and adults.

HECHT'S KEW BEE BREAD
HECHT'S SLICED BREAD

Manufacturer.—Hecht's Bakery, Bristol, Tenn.

Description.—A white bread made by the sponge dough method (method described in The Journal, March 5, 1932, p. 817); prepared from a mixture of patent flours, water, shortening, yeast, salt, dextrose, shortening, evaporated milk and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.8
Ash	1.7
Fat	3.0
Protein (N × 6.25)	9.5
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	48.7

Calorics.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

---

[4] Rosenthal, S. M., and Lillie, R. D.: Am. J. Physiol. **97:** 131 (April) 1931.

From the Pacific Institute of Tropical Medicine within the Hooper Foundation of the University of California Medical School.

[1] James, W. M.: Remarks on the Diagnosis of Intestinal Amebiasis, Fifteenth Annual Report of Medical Dept. of United Fruit Company, 1926, *p. 82.*

[2] Schaudinn's fluid: Two parts of saturated aqueous mercuric chloride in physiologic solution of sodium chloride, one part 95 per cent alcohol. This is the stock solution and will keep indefinitely. Four cc. of glacial acetic acid is added to 96 cc. of the stock solution on using. Fresh solution should be made up at frequent intervals.

VI-ZOY

(Essentially Sugars, Cocoa, Soy Bean Flour, Fats, Dry Yeast, Salts, Cod Liver Oil and Cod Liver Oil Concentrate, and Flavoring; Contains Vitamins A, B, D and G)

Manufacturer.—Harshaw Essential Foods, Inc., Cleveland.

Description.—A powdered food for the preparation of a nutritious beverage, contains sucrose, soy bean flour, cocoa, lactose, maltose, dextrose, dried yeast, butter, coconut and cottonseed oils, cod liver oil and cod liver oil concentrate calcium, iron and magnesium lactate, potassium and sodium chlorides, coumarin, vanillin and other flavoring, contains vitamins A, B, D and G.

Manufacture.—Dried soy beans are freed of foreign materials, washed, treated with dilute acid solution, washed free of acid, steamed, ground, and dispersed in water to a milky fluid. The fats and cod liver oil concentrate are added, and the mixture is homogenized and spray dried in hot air currents (from 85 to 90 C.). The powder is promptly cooled, is mixed with the sugars, cocoa, salts and flavors, is bolted through a sixty mesh screen, and is packed in hermetically sealed cans from which the air is withdrawn under vacuum and replaced by nitrogen gas to prevent the development of rancidity.

Analysis (submitted by manufacturer).—

	per cent
Moisture	2.1
Ash	3.2
Fat (ether extract)	11.6
Protein (noncaffeine and nontheobromine N × 6.25)	13.7
Reducing sugars as dextrose	10.7
Sucrose (copper reduction method)	41.0
Starch (acid hydrolysis method)	2.9
Crude fiber	2.0
Total carbohydrates other than crude fiber (by difference)	67.0
Caffeine	0.04
Theobromine	0.32
Phosphorus (P)	0.31
Calcium (Ca)	0.30
Iron (Fe)	0.02

Calories.—4.3 per gram, 122 per ounce.

Vitamins.—Biologic tests by means of rats give the following vitamin content:

Vitamin A: 280 units per ounce. (One unit is the minimum amount of the substance required daily to give an average gain in weight of 3 Gm. a week for eight weeks after the "depletion" period.)

Vitamin B complex: 28 units per ounce. (One unit of Vitamin B "complex" is the minimum amount of test substance required daily to induce an average gain of 3 Gm. a week for eight weeks after the depletion period.)

Vitamin D: 35 Steenbock units (curative method) per ounce. (One Steenbock unit [curative method] is the total amount of substance required to induce a positive line test in ten days.)

Claims of Manufacturer.—A powdered food for the preparation of a table beverage with milk, for food tablets, etc. Enhances or supplements the vitamins A, B, D and G values, iron and calcium content, and caloric value of milk. Vi-Zoy attractively flavors milk.

EHMANN RIPE OLIVES

(Medium, Large, Extra Large, Mammoth, Giant, Jumbo, Colossal)

Manufacturer.—Ehmann Olive Company, Oroville, Calif.

Description.—California ripe olives of graded sizes in brine.

Manufacture.—The fresh mature fruit is mechanically separated into olives of definite sizes; these are separately placed in processing vats containing a dilute solution of caustic soda (2 per cent) within a few hours after harvesting. The alkaline solution removes natural bitter elements (tannic acid); from four to seven applications of the alkaline solution, depending on the size of the olives, are necessary to penetrate entirely to the olive pit. Usually there is a lapse of from five to seven days between the alkaline treatments. The olives remain in the solution only a few hours each time and are washed three or four times daily with fresh water between the treatments. After the last caustic soda treatment the alkali is washed out with water and the olives are allowed to stand in salt brine. After sufficient salt flavor is acquired, they are given a final sorting and packed in brine (2.5 to 3 per cent) in tins and glass jars. The sealed packages are processed at 116 C. for one hour. The entire preparation and processing are under the supervision of the California State Department of Public Health.

Analysis (submitted by manufacturer).—

The edible portion of ripe olives is 81 per cent of the entire olive.

(edible portion of drained olives, sizes medium, large, extra large)

	per cent
Moisture	73.5
Ash	2.3
Fat	18.6
Protein (N × 6.25)	1.3
Crude fiber	1.8
Carbohydrates other than crude fiber (by difference)	2.5

(edible portion of drained olives, sizes giant, jumbo, colossal)

	per cent
Moisture	82.5
Ash	2.1
Fat	9.1
Protein (N × 6.25)	1.3
Crude fiber	2.6
Carbohydrates other than crude fiber (by difference)	2.4

Calories.—(Small sizes) 1.8 per gram, 51 per ounce.
(Large sizes) 1.0 per gram, 28 per ounce.

Claims of Manufacturer.—Ripe olives of graded sizes for table use.

DAVIDSON'S PRIZE WHEAT BREAD

(75% White Flour, 25% Whole Wheat Flour)

Manufacturer.—Davidson Baking Company, Portland, Ore.

Description.—A white bread made by the sponge dough method (method described in The Journal, March 5, 1932, p. 817), prepared from patent flour, whole wheat flour, water, sucrose, yeast, salt, shortening, molasses, malt syrup and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	35.5
Ash	0.9
Fat	1.2
Protein (N × 6.35)	10.0
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	51.7

Calories.—2.2 per gram, 62 per ounce.

Claims of Manufacturer.—A bread of good quality.

CROWN CAKE FLOUR (Bleached)

Manufacturer.—Crown Mills, Portland, Ore.

Description.—A soft white wheat short patent flour designed for cake baking.

Manufacture.—Selected soft white wheat is cleaned, washed, tempered, and milled by essentially the same procedures as described in The Journal, June 18, 1932, page 2210. Chosen flour streams are blended, bleached with 21 Gm. of chlorine for each 196 pounds and 1 part of benzoyl peroxide to 28,000 parts of flour and automatically packed in bags.

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.0
Ash	0.36
Fat (ether extraction method)	1.0
Protein (N × 5.7)	8.7
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	76.6

Calories.—3.5 per gram, 99 per ounce.

Claims of Manufacturer.—A soft white wheat short patent flour designed for cake baking.

USEMORE BRAND GOLDEN SYRUP

(85 Per Cent Corn Syrup, 15 Per Cent Refiners' Syrup)

Packer.—D. B. Scully Syrup Company, Chicago.

Distributor.—Service Grocer Company, Detroit.

Description.—A table syrup, a corn syrup flavored with refiners' syrup.

Manufacture, Analysis, Calories, Claims of Manufacturer.—See these sections for Banner Blue Corn Syrup with Cane Flavor (The Journal, March 5, 1932, p. 817).

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1931-1932 BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

PART I. PREMEDICAL EDUCATION

For the convenience of admission officers of medical schools, the Council on Medical Education and Hospitals has, since 1915, published a list of "Approved Colleges of Arts and Sciences and Junior Colleges," which is a consolidation of the approved lists of recognized national and regional standardizing agencies. The same information is also contained in Bulletin 19, together with Supplements 1 and 2, issued by the Office of Education in the United States Department of the Interior.

Prospective medical students do well to secure their premedical training in colleges which are included in the approved list. Otherwise they may find it difficult or impossible to enter the medical school of their choice; for, while there is no inviolable rule excluding candidates from unaccredited colleges, the medical schools, in selecting from a large number of applicants, naturally and properly give the preference to those whose preparation has been received in institutions which are known to conform to accepted standards or exact of students from other institutions, qualitatively and quantitatively, a higher performance. Colleges not named in the accompanying list are urged to apply for approval to one of the organizations appearing in the key to table 1.

Junior Colleges.—Credentials of premedical work taken in junior colleges (indicated in the list by an asterisk) must show the completion of at least sixty semester hours in subjects of college grade, including the required credits in physics, chemistry, biology and English. Students presenting such credentials must have completed fifteen units of accredited high school work before taking college courses.

Normal Schools.—Students presenting credentials from normal schools, which are organized primarily for the training of teachers, may be accepted if such credentials have the certification of the registrar of the state university that the courses completed by the student are the equivalent of the courses accepted from accredited colleges and universities.

Table 1.—*Approved Colleges of Arts and Sciences and Junior Colleges*

KEY TO TABLE 1

KEY LETTER	AGENCY
A	Association of American Universities.
C	North Central Association of Colleges and Secondary Schools.
M	Middle States Association of Colleges and Secondary Schools.
N	New England Association of Colleges and Secondary Schools, Member of.
S	Association of Colleges and Secondary Schools of the Southern States.
W	Northwest Association of Secondary and Higher Schools.

(Revised to May 15, 1932)

ALABAMA

Name of College and Location	*Authority*
Alabama College,	S
Alabama Polytech	S
Birmingham South	A-S
Howard College, Birmingham	A-S
Judson College, Marion	S
Marion Institute,*	S
Spring Hill C	S
Talladega Coll	S
University of	A-S
Woman's Coll	S

ARIZONA

Name of College and Location	*Authority*
Arizona State Teachers College, Flagstaff	C
Arizona State Teachers College, Tempe	C
Phoenix Junior College,* Phoenix	C
University of Arizona, Tucson	A-C

ARKANSAS

Name of College and Location	*Authority*
Arkansas Agricultural and Mechanical College,* Jonesboro	C
Arkansas Agricultural and Mechanical College,* Monticello	C
Arkansas Polytechnic Institute,* Russellville	C
Arkansas State Teachers College, Conway	C
Central College,* Conway	C
College of the Ozarks, Clarksville	C
Galloway Woman's College,* Searcy	C
Hendrix College, Conway	A-C
Little Rock Junior College,* Little Rock	C
State Agricultural and Mechanical College,* Magnolia	C
University of Arkansas, Fayetteville	A-C

CALIFORNIA

Name of College and Location	*Authority*
California Institute of Technology, Pasadena	A
College of San Rafael, San Rafael	W
College of the Holy Name, Oakland	W
College of the Pacific, Stockton	A
Dominican College, San Rafael	A
Immaculate Heart College, Hollywood	W
Loyola University, Los Angeles	W
Mills College, Mills College (Oakland)	A
Occidental College, Los Angeles	A
Pacific Union College,* Angwin	W
Pomona College, Claremont	A
San Diego State Teachers College, San Diego	W
Stanford University, Stanford University	A
St. Mary's College, St. Mary's College (Oakland)	W
University of California, Berkeley	A
University of Redlands, Redlands	A-W
University of San Francisco, San Francisco	W
University of Santa Clara, Santa Clara	W
University of Southern California, Los Angeles	A
Whittier College, Whittier	A

COLORADO

Name of College and Location	*Authority*
Colorado Agricultural College, Fort Collins	C
Colorado College, Colorado Springs	A-C
Colorado School of Mines, Golden	A-C
Colorado State Teachers College, Greeley	C
Colorado Woman's College,* Denver	C
Loretto Heights College, Loretto	C
Regis College,* Denver	C
University of Colorado, Boulder	A-C
University of Denver, University Park (Denver)	A-C
Western State College of Colorado, Gunnison	C

CONNECTICUT

Name of College and Location	*Authority*
Albertus Magnus College, New Haven	N
Connecticut Agricultural College, Storrs	N
Connecticut College for Women, New London	A-N
Junior College of Connecticut,* Bridgeport	N
Trinity College, Hartford	A-N
Wesleyan University, Middletown	A-N
Yale University, New Haven	A-N

DELAWARE

Name of College and Location	*Authority*
University of Delaware, Newark	A-M

DISTRICT OF COLUMBIA

Name of College and Location	*Authority*
American University, Washington	M
Catholic University of America, Washington	A-M
Georgetown University, Washington	A-M
George Washington University, Washington	A-M
Howard University, Washington	M
Trinity College, Washington	A-M

FLORIDA

Name of College and Location	*Authority*
Florida State College for Women, Tallahassee	A-S
Rollins College, Winter Park	S
St. Petersburg Junior College,* St. Petersburg	S
University of Florida, Gainesville	A-S

---

* Junior College.

Table 1.—*Approved Colleges of Arts and Sciences and Junior Colleges—Continued*

Name of College and Location	*Authority*
GEORGIA	
Agnes Scott College, Decatur	A-S
Andrew College,* Cuthbert	S
Breneau College, Gainesville	S
Emory University, Atlanta	A-S
Georgia School of Technology, Atlanta	A S
Georgia State College for Women, Milledgeville	S
Georgia State Teachers College, Athens	S
Georgia State Woman's College, Valdosta	S
Junior College of Augusta,* Augusta	S
Mercer University, Macon	S
Shorter College, Rome	A S
University of Georgia, Athens	A S
Wesleyan College, Macon	A S
HAWAII	
University of Hawaii, Honolulu	A
IDAHO	
College of Idaho, Caldwell	W
Northwest Nazarene College,* Nampa	W
State Normal School, Albion	W
State Normal School, Lewiston	W
Southern Branch, University of Idaho,* Pocatello	W
University of Idaho, Moscow	A W
ILLINOIS	
Armour Institute of Technology, Chicago	C
Augustana College and Theological Seminary, Rock Island	C
Blackburn College,* Carlinville	C
Bradley Polytechnic Institute, Peoria	A C
Carthage College, Carthage	A-C
Central Y M C A College,* Chicago	C
Crane Junior College,* Chicago	C
De Paul University, Chicago	C
Elmhurst College,* Elmhurst	C
Eureka College, Eureka	A C
Frances Shimer Junior College,* Mt Carroll	C
Illinois College, Jacksonville	A C
Illinois State Normal University (Southern), Carbondal	C
Illinois State Normal University, Normal	C
Illinois State Teachers College (Northern), DeKalb	C
Illinois State Teachers College (Eastern), Charleston	C
Illinois State Teachers College (Western), Macomb	C
Illinois Wesleyan University, Bloomington	A C
James [illegible] catur	C
Joliet [illegible]	C
Knox [illegible]	A C
Lake Forest College, Lake Forest	A C
La Salle Peru Oglesby Junior College,* La Salle	C
Lewis Institute, Chicago	C
Lincoln College,* Lincoln	C
Loyola University, Chicago	C
Lyons Township Junior College,* La Grange	C
MacMurray College for Women (formerly Illinois Woman's College), Jacksonville	A-C
McKendree College, Lebanon	C
Monmouth College, Monmouth	A C
Monticello Seminary,* Godfrey	C
Morton Junior College, Cicero*	C
North Park College,* Chicago	C
North Central College, Naperville	A C
Northwestern University, Evanston	A-C
Rockford College, Rockford	A C
Rosary College, River Forest	A C
Shurtleff College, Alton	C
University of Chicago, Chicago	A C
University of Illinois, Urbana	A-C
Wheaton College, Wheaton	A C
INDIANA	
Ball State Teachers College, Muncie	C
Butler University, Indianapolis	C
De Pauw University, Greencastle	A C
Earlham College, Richmond	A C
Evansville College, Evansville	C
Franklin College, Franklin	A-C
Hanover College, Hanover	C
Indiana State Teachers College, Terre Haute	C
Indiana University, Bloomington	A C
Manchester College, North Manchester	C
Purdue University, Lafayette	A C
Rose Polytechnic Institute, Terre Haute	A-C
St Joseph's College,* Collegeville	C
St. Mary's College, Notre Dame	C
St. Mary of the Woods College, Saint Mary of-the-Woods	C
University of Notre Dame, Notre Dame	A C
Valparaiso University, Valparaiso	C
Wabash College, Crawfordsville	A-C
IOWA	
Clarke College (formerly Mt St Joseph College), Dubuque	C
Coe College, Cedar Rapids	A-C
Columbia College, Dubuque	A C
Cornell College, Mount Vernon	A-C
Drake University, Des Moines	A-C
Graceland College,* Lamoni	C
Grinnell College, Grinnell	A C
Iowa State College of Agriculture and Mechanical Arts, Ames	A-C
Iowa State Teachers College, Cedar Falls	C
Luther College, Decorah	C
Mason City Junior College,* Mason City	C
Morningside College, Sioux City	A C
Mount Mercy Junior College,* Cedar Rapids	C
Ottumwa Heights College* (formerly St. Joseph Junior College) Ottumwa	C
Parsons College, Fairfield	C
Simpson College, Indianola	A C
St Ambrose College, Davenport	C
State University of Iowa, Iowa City	A C
University of Dubuque, Dubuque	C
KANSAS	
Baker University, Baldwin City	A C
Bethany College, Lindsborg	C
College of Emporia, Emporia	C
Fort Hays Kansas State College (formerly Kansas State Teachers College), Hays	C
Friends University, Wichita	C
Kansas State College of Agriculture and Applied Science, Manhattan	A C
Kansas State Teachers College of Emporia, Emporia	C
Kansas State Teachers College, Pittsburg	C
Marymount College, Salina	C
Municipal University of Wichita, Wichita	C
Ottawa University, Ottawa	C
Southwestern College, Winfield	C
St Benedict's College, Atchison	C
Sterling College, Sterling	C
The Saint Mary College,* Leavenworth	C
University of Kansas, Lawrence	A C
Washburn College, Topeka	A C
KENTUCKY	
Bethel Woman's College,* Hopkinsville	S
Berea College, Berea	A S
Centre College, Danville	A S
Cumberland College,* Williamsburg	S
Eastern Kentucky State Teachers College, Richmond	S
Georgetown College, Georgetown	S
Morehead State Teachers College, Morehead	S
Murray State Teachers College, Murray	S
Nazareth Junior College,* Nazareth	S
Pikeville College,* Pikeville	S
Transylvania University, Lexington	S
University of Kentucky, Lexington	A-S
University of Louisville, Louisville	S
Western Kentucky State Teachers College, Bowling Green	S
LOUISIANA	
Centenary College, Shreveport	S
Louisiana College, Pineville	S
Louisiana Polytechnic Institute, Ruston	S
Louisiana State Normal College, Natchitoches	S
Louisiana State University, Baton Rouge	A S
Loyola University, New Orleans	S
Southwestern Louisiana Institute, Lafayette	S
Tulane University of Louisiana, including H. Sophie Newcomb Memorial College, New Orleans	A S
MAINE	
Bates College, Lewiston	A-N
Bowdoin College, Brunswick	A N
Colby College, Waterville	A-N
University of Maine, Orono	A N
MARYLAND	
College of Notre Dame of Maryland, Baltimore	M
Goucher College, Baltimore	A-M
Hood College, Frederick	M
Johns Hopkins University, Baltimore	A M
Loyola College, Baltimore	M
Morgan College, Baltimore	M
Mount St Mary's College, Emmitsburg	M
St. John's College, Annapolis	M
St Joseph's College, Emmitsburg	M
The United States Naval Academy, Annapolis	A
University of Maryland, College Park	A-M
Washington College, Chestertown	M
Western Maryland College, Westminster	M
MASSACHUSETTS	
Amherst College, Amherst	A N
Boston College, Chestnut Hill	A
Boston University, Boston	A-N
Clark University, Worcester	A-N
Harvard University, Cambridge	A N
Holy Cross College, Worcester	A-N
International Y. M. C. A College, Springfield	N
Junior College of Bradford Academy,* Bradford	N
Lasell Seminary Junior College,* Auburndale	N
Massachusetts Agricultural College, Amherst	A
Massachusetts Institute of Technology, Cambridge	A-N
Massachusetts State College, Amherst	N
Mount Holyoke College, South Hadley	A N
Radcliffe College, Cambridge	A N
Simmons College, Boston	A-N
Smith College, [illegible]	A-N
Tufts College, T[illegible]	A-N
Wellesley Colleg [illegible]	A-N
Wheaton College, Norton	A-N
Williams College, Williamstown	A-N
Worcester Polytechnic Institute, Worcester	A
MICHIGAN	
Albion College, Albion	A C
Alma College, Alma	C
Battle Creek College, Battle Creek	C
Bay City Junior College,* Bay City	C
Calvin College, Grand Rapids	C

---

* Junior College

Table 1.—*Approved Colleges of Arts and Sciences and Junior Colleges—Continued*

Name of College and Location	*Authority*
College of the City of Detroit, Detroit	C
Emanuel Missionary College,* Berrien Springs	C
Flint Junior College,* Flint	C
Grand Rapids Junior College,* Grand Rapids	C
Highland Park Junior College,* Highland Park	C
Hillsdale College, Hillsdale	C
Hope College, Holland	C
Kalamazoo College, Kalamazoo	A-C
Marygrove College, Detroit	C
Michigan College of Mining and Technology, Houghton	C
Michigan State College of Agriculture and Applied Science, East Lansing	A-C
Michigan State Normal College, Ypsilanti	C
Michigan State Teachers College (Western), Kalamazoo	C
Michigan State Teachers College (Central), Mount Pleasant	C
Michigan State Teachers College (Northern), Marquette	C
Muskegon Junior College,* Muskegon	C
Port Huron Junior College,* Port Huron	C
University of Detroit, Defroit	C
University of Michigan, Ann Arbor	A-C
MINNESOTA	
Carleton College, Northfield	A-C
College of St. Catherine, St. Paul	A-C
College of St. Scholastica, Duluth	C
College of St. Teresa, Winona	A-C
College of St. Thomas, St. Paul	C
Concordia College, Moorhead	C
Duluth Junior College,* Duluth	C
Eveleth Junior College,* Eveleth	C
Gustavus Adolphus College, St. Peter	C
Hamline University, St. Paul	A-C
Hibbing Junior College,* Hibbing	C
Macalester College, St. Paul	A-C
Rochester Junior College,* Rochester	C
St. Olaf College, Northfield	A-C
University of Minnesota, Minneapolis	A-C
Virginia Junior College,* Virginia	C
MISSISSIPPI	
Blue Mountain College, Blue Mountain	S
Delta State Teachers College, Cleveland	S
Gulf Park College,* Gulfport	S
Harrison-Stone-Jackson Agricultural H. S. and Junior College,* Perkinston	S
Hinds Junior College,* Raymond	S
Millsaps College, Jackson	A-S
Mississippi College, Clinton	S
Mississippi Woman's College, Hattiesburg	S
Pearl River College,* Poplarville	S
Sunflower County Junior College,* Moorhead	S
Whitworth College,* Brookhaven	S
MISSOURI	
Central College, Fayette	A-C
Christian College,* Columbia	C
Culver-Stockton College, Canton	C
Drury College, Springfield	A-C
Junior College of Flat River,* Flat River	C
Junior College of Kansas City,* Kansas City	C
Kemper Military School,* Boonville	C
Lindenwood College, St. Charles	C
Missouri State Teachers College (Southeast), Cape Girardeau	C
Missouri State Teachers College (Northeast), Kirksville	C
Missouri State Teachers College (Northwest), Maryville	C
Missouri State Teachers College (Southwest), Springfield	C
Missouri State Teachers College (Central), Warrensburg	C
Missouri Valley College, Marshall	C
Park College, Parkville	A-C
Principia, The,* St. Louis	C
Stephens College,* Columbia	C
St. Joseph's Junior College,* St. Joseph	C
St. Louis University, St. Louis	A-C
Tarkio College, Tarkio	C
Teachers College of Kansas City,* Kansas City	C
University of Missouri, Columbia	A-C
Washington University, St. Louis	A-C
Webster College, Webster Groves	C
Wentworth Military Academy,* Lexington	C
Westminster College, Fulton	A-C
William Jewell College, Liberty	A-C
William Woods College,* Fulton	C
MONTANA	
Intermountain Union College,* Helena	C-W
Montana State College, Bozeman	A-C-W
Mount St. Charles College, Helena	C
Northern Montana College,* Havre	W
School of Mines, Butte	W
State University of Montana, Missoula	A-C-W
NEBRASKA	
Creighton University, Omaha	C
Doane College, Crete	A-C
Hastings College, Hastings	C
Nebraska Wesleyan University, Lincoln	C
Union College,* Lincoln	C
University of Nebraska, Lincoln	A-C
NEVADA	
University of Nevada, Reno	A
NEW HAMPSHIRE	
Dartmouth College, Hanover	A-N
University of New Hampshire, Durham	A-N
NEW JERSEY	
College of St. Elizabeth, Convent	A-M
Georgian Court College, Lakewood	M
New Jersey College for Women, New Brunswick	A
Princeton University, Princeton	A-M
Rutger's University, New Brunswick	A-M
Steven's Institute of Technology, Hoboken	A-M
NEW MEXICO	
New Mexico College of Agriculture and Mechanic Arts, State College	C
New Mexico State Teachers College, Silver City	C
University of New Mexico, Albuquerque	C
NEW YORK	
Adelphi College, Garden City	M
Alfred University, Alfred	A-M
Barnard College, New York	A-M
Canisius College, Buffalo	M
Clarkson School of Technology, Potsdam	M
Colgate University, Hamilton	A-M
College of Mount Saint Vincent-on-Hudson, New York	M
College of New Rochelle, New Rochelle	A-M
College of St. Rose, Albany	M
College of the City of New York, New York	A-M
College of the Sacred Heart, New York	M
Columbia University, New York	A-M
Cornell University, Ithaca	A-M
D'Youville College, Buffalo	M
Elmira College, Elmira	A-M
Fordham University, New York	A-M
Good Counsel College, White Plains	M
Hamilton College, Clinton	A-M
Hobart College, Geneva	A-M
Hunter College, New York	A-M
Keuka College, Keuka Park	M
Manhattan College, New York	M
Marymount College, Tarrytown-on-Hudson	M
Nazareth College, Rochester	M
New York State College for Teachers, Albany	A
New York University, New York	A-M
Niagara University, Niagara Falls	M
Polytechnic Institute of Brooklyn, Brooklyn	A-M
Rensselaer Polytechnic Institute, Troy	A-M
Russell Sage College, Troy	M
St. Bonaventures College, Allegany	M
St. John's College, Brooklyn	M
St. Joseph's College for Women, Brooklyn	M
St. Lawrence University, Canton	A-M
St. Stephen's College, Annandale-on-Hudson	A-M
Skidmore College, Saratoga Springs	M
Syracuse University, Syracuse	A-M
Union College, Schenectady	A-M
United States Military Academy, West Point	A
University of Buffalo, Buffalo	A-M
University of Rochester, Rochester	A-M
Vassar College, Poughkeepsie	A-M
Wagner Memorial Lutheran College, Staten Island	M
Wells College, Aurora	A-M
William Smith College, Geneva	M
NORTH CAROLINA	
Catawba College, Salisbury	S
Davidson College, Davidson	A-S
Duke University, Durham	A-S
East Carolina Teachers College, Greenville	S
Elon College,** Elon College	S
Greensboro College, Greensboro	S
Guilford College, Guilford	S
Lenoir Rhyne College, Hickory	S
Mars Hill College,* Mars Hill	S
Meredith College, Raleigh	A-S
North Carolina College for Women, Greensboro	S
North Carolina State College of Agriculture and Engineering, Raleigh	S
Salem College, Winston-Salem	S
St. Mary's School,* Raleigh	S
University of North Carolina, Chapel Hill	A-S
Wake Forest College, Wake Forest	S
NORTH DAKOTA	
Jamestown College, Jamestown	C
North Dakota Agricultural College, Fargo	C
University of North Dakota, University (Grand Forks)	A-C
OHIO	
Antioch College, Yellow Springs	C
Ashland College, Ashland	C
Baldwin-Wallace College, Berea	A-C
Bowling Green State College, Bowling Green	C
Capital University, Columbus	C
Case School of Applied Science, Cleveland	A-C
College of Mount St. Joseph-on-the-Ohio, Mount St. Joseph	C
College of Wooster, Wooster	A-C
Denison University, Granville	A-C
Heidelberg College, Tiffin	A-C
Hiram College, Hiram	A-C
John Carroll University, Cleveland	C
Kenyon College, Gambier	A-C

---

* Junior College. ** Dropped from membership, effective September 1, 1932.

Table 1.—*Approved Colleges of Arts and Sciences and Junior Colleges—Continued*

Name of College and Location	*Authority*
Lake Erie College, Painesville	A-C
Marietta College, Marietta	A C
Miami University, Oxford	A-C
Mount Union College, Alliance	A C
Muskingum College, New Concord	C
Notre Dame College, South Euclid	C
Oberlin College, Oberlin	A-C
Ohio State University, Columbus	A C
Ohio University, Athens	A-C
Ohio Wesleyan University, Delaware	A-C
Otterbein College, Westerville	A-C
University of Akron, Akron	A C
University of Cincinnati, Cincinnati	C
University of Dayton, Dayton	C
University of the City of Toledo, Toledo	C
Ursuline College, Cleveland	C
Western College, Oxford	A C
Western Reserve University, Cleveland	A C
Wittenberg College, Springfield	A C
Xavier University (formerly St. Xavier College), Cincinnati	C
OKLAHOMA	
Northeastern Oklahoma Junior College,* Miami	C
Oklahoma Agricultural and Mechanical College, Stillwater	C
Oklahoma State College for Women, Chickasha	A C
Panhandle Agricultural and Mechanical College,* Goodwell	C
Phillips University, Enid	C
University of Oklahoma, Norman	A C
University of Tulsa, Tulsa	C
OREGON	
Albany College, Albany	W
Linfield College, McMinnville	W
Mount Angel College,* St Benedict	W
Oregon Agricultural College, Corvallis	A W
Oregon State Normal School, Monmouth	W
Pacific University, Forest Grove	W
Reed College, Portland	A W
Southern Oregon Normal School, Ashland	W
State Normal School, La Grande	W
University of Oregon, Eugene	A-W
Willamette University, Salem	A W
PENNSYLVANIA	
Albright College, Reading	M
Allegheny College, Meadville	A M
Bryn Mawr College, Bryn Mawr	A-M
Bucknell University Lewisburg	A M
Carnegie Institute of Technology, Pittsburgh	A-M
Dickinson College, Carlisle	A M
Drexel Institute, Philadelphia	A-M
Franklin and Marshall College, Lancaster	A-M
Geneva College, Beaver Falls	M
Gettysburg College, Gettysburg	A M
Grove City College, Grove City	M
Haverford College, Haverford	A M
Immaculata College, Immaculata	M
Juniata College, Huntington	M
Lafayette College, Easton	A M
La Salle College, Philadelphia	M
Lebanon Valley College, Annville	M
Lehigh University, South Bethlehem	A-M
Lincoln University, Lincoln University	M
Marywood College, Scranton	M
Mercyhurst College, Erie	M
Moravian College (for men), Bethlehem	M
Mt St Joseph College, Philadelphia	M
Muhlenberg College, Allentown	A M
Pennsylvania College for Women, Pittsburgh	M
Pennsylvania State College, State College	A-M
Rosemont College, Rosemont	M
St. Joseph's College, Philadelphia	M
St. Thomas College, Scranton	M
St. Vincent College, Latrobe	M
Seton Hill College, Greensburg	M
Susquehanna University, Selinsgrove	M
Swarthmore College, Swarthmore	A-M
Temple University, Philadelphia	M
Thiel College, Greenville	M
University of Pennsylvania, Philadelphia	A M
University of Pittsburgh, Pittsburgh	A-M
Ursinus College, Collegeville	A-M
Villanova College, Villanova	M
Washington and Jefferson College, Washington	A-M
Westminster College, New Wilmington	A-M
Wilson College, Chambersburg	A-M
RHODE ISLAND	
Brown University, Providence	A N
Pembroke College (Women's College of Brown University), Providence	A-N
Rhode Island State College, Kingston	N
SOUTH CAROLINA	
Clemson College, Clemson	S
Coker College, Hartsville	S
College of Charleston, Charleston	S
Converse College, Spartanburg	A-S
Erskine College, Due West	S
Furman University, Greenville	A-S
Limestone College, Gaffney	S
Presbyterian College of South Carolina, Clinton	S
The Citadel (The Military College of South Carolina), Charleston	S
University of South Carolina, Columbia	A-S
Winthrop College, Rock Hill	A-S
Wofford College, Spartanburg	A-S
SOUTH DAKOTA	
Augustana College, Sioux Falls	C
Dakota Wesleyan University, Mitchell	C
Huron College, Huron	C
Sioux Falls College,* Sioux Falls	C
South Dakota State College of Agriculture and Mechanic Arts Brookings	C
South Dakota State School of Mines, Rapid City	C
University of South Dakota, Vermilion	A C
Yankton College, Yankton	C
TENNESSEE	
Carson and Newman College, Jefferson City	S
East Tennessee State Teachers College, Johnson City	S
Fisk University, Nashville	S
George Peabody College for Teachers, Nashville	A-S
Hiwassee College,* Madisonville	S
Maryville College, Maryville	S
Middle Tennessee State Teachers College, Murfreesboro	S
Nashville Agricultural Normal Institute,* Madison	S
Southwestern, Memphis	S
Tennessee Wesleyan College,* Athens	S
Tusculum College, Greenville	S
University of Chattanooga, Chattanooga	A S
University of Tennessee, Knoxville	A S
University of the South, Sewanee	A S
Vanderbilt University, Nashville	A S
Ward Belmont School for Young Women,* Nashville	S
West Tennessee State Teachers College, Memphis	S
TEXAS	
Agricultural and Mechanical College of Texas, College Station	S
Baylor College for Women, Belton	S
Baylor University, Waco	S
Brownsville Junior College,* Brownsville	S
College of Industrial Arts, Denton	A
East Texas State Teachers College, Commerce	S
Incarnate Word College, San Antonio	A S
John Tarleton Agricultural College,* Stephenville	S
Lon Morris College,* Jacksonville	S
Mary Allen Seminary,* Crockett	S
North Texas State Teachers College, Denton	S
Our Lady of the Lake College, San Antonio	A S
Rice Institute, Houston	A-S
Sam Houston State Teachers College, Huntsville	S
Simmons University, Abilene	S
Southern Methodist University, Dallas	A S
South Park College,* Beaumont	S
South West Texas State Teachers College, San Marcos	S
Southwestern University, Georgetown	S
Stephen F. Austin State Teachers College, Nacogdoches	S
Sul Ross State Teachers College, Alpine	S
Texarkana Junior College,* Texarkana	S
Texas Christian University, Fort Worth	A S
Texas College of Arts and Industries,** Kingsville	S
Texas State College for Women, Denton	S
Texas Technological College, Lubbock	S
Trinity University, Waxahachie	S
Tyler Junior College,* Tyler	S
University of Texas, Austin	A S
West Texas State Teachers College, Canyon	S
UTAH	
Agricultural College of Utah, Logan	A W
Brigham Young University, Provo	A-W
Snow College,* Ephraim	W
University of Utah, Salt Lake City	A
Weber College,* Ogden	W
VERMONT	
Middlebury College, Middlebury	A-N
University of Vermont, Burlington	A-N
VIRGINIA	
Averett College,* Danville	S
Bridgewater College, Bridgewater	S
East Radford State Teachers College, East Radford	S

---

* Junior College. ** Dropped from membership, effective September 1, 1932.

TABLE 1.—*Approved Colleges of Arts and Sciences and Junior Colleges—Continued*

Name of College and Location	*Authority*
Emory and Henry College, Emory	S
Hampden-Sidney College, Hampden-Sidney	S
Lynchburg College, Lynchburg	S
Mary Baldwin College, Staunton	S
Randolph-Macon College, Ashland	A-S
Randolph-Macon Woman's College, Lynchburg	A-S
Roanoke College, Salem	S
State Teachers College, Farmville	S
State Teachers College, Fredericksburg	S
State Teachers College, Harrisonburg	S
Sullins College,* Bristol	S
Sweet Briar College, Sweet Briar	A-S
University of Richmond, Richmond	A-S
University of Virginia, Charlottesville	A-S
Virginia Intermont College,* Bristol	S
Virginia Military Institute, Lexington	S
Virginia Polytechnic Institute, Blacksburg	S
Washington and Lee University, Lexington	A-S
William and Mary College, Williamsburg	A-S
WASHINGTON	
College of Puget Sound, Tacoma	W
Gonzaga University, Spokane	W
State College of Washington, Pullman	A-W
State Normal School, Bellingham	W
State Normal School, Cheney	W
State Normal School, Ellensburg	W
University of Washington, Seattle	A-W
Walla Walla College,* Walla Walla	W
Whitman College, Walla Walla	A-W
WEST VIRGINIA	
Bethany College, Bethany	A-C
Concord State Teachers College, Athens	C
Marshall College, Huntington	C
Potomac State School,* Keyser	C
West Virginia State College (formerly West Virginia Collegiate Institute), Institute	C
West Virginia University, Morgantown	A-C
WISCONSIN	
Beloit College, Beloit	A-C
Carroll College, Waukesha	A-C
La Crosse State Teachers College, La Crosse	C
Lawrence College, Appleton	A-C
Marquette University, Milwaukee	A-C
Milwaukee-Downer College, Milwaukee	A-C
Milwaukee State Teachers College, Milwaukee	C
Mount Mary College (formerly St. Mary's College, Prairie du Chien) Milwaukee	C
Ripon College, Ripon	A-C
State Teachers College, Oshkosh	C
Stout Institute, Menomonie	C
University of Wisconsin, Madison	A-C
WYOMING	
University of Wyoming, Laramie	A-C
CANADA	
McGill University, Montreal	A
University of Toronto, Toronto	A

* Junior College.

Minimum Standard of Education Preliminary to the Study of Medicine

Revised to September, 1931

The minimum requirement for admission to an approved medical college is a four-year high school education or its full equivalent and sixty semester hours of collegiate work, exclusive of military and physical education, extending through two years, of thirty-two weeks each, exclusive of holidays, in an accredited college. The subjects included in the two years of college work, should be in accordance with the following schedule.

(*a*) *Chemistry.*—Twelve semester hours required of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work and four semester hours in organic chemistry, including two semester hours of laboratory work. In the interpretation of this rule, work in qualitative analysis may be counted as general inorganic chemistry.

SCHEDULE OF SUBJECTS OF THE TWO YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours † Required

Required Subjects:	Semester Hours
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d)	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	**Semester Hours**
A modern foreign language (f)	6-12
Advanced botany or advanced zoology	3-6
Psychology and logic	3-6
Advanced mathematics, including algebra and trigonometry	3-6
Additional courses in chemistry	3-6
Other Suggested Electives:	
English (additional), economics, history, sociology, political science, mathematics, Latin, Greek, drawing.	

† A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. This requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *Foreign Language.*—A reading knowledge of a modern foreign language is strongly urged. If the reading knowledge of this language is obtained on the basis of high school work, the student is urged to take another language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages.

(*g*) *In General.*—This premedical course in both quantity and quality must be such as to make it acceptable as the equivalent of the first two years of the course leading to the degree of Bachelor of Science or Bachelor of Arts in approved colleges of arts and sciences.

A list of colleges of arts and sciences approved by the Council on Medical Education and Hospitals is revised and published in this issue. By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence. Colleges of liberal arts and sciences which have been approved by their district association, or by the Association of American Universities, are considered as acceptable to the Council on Medical Education and Hospitals. Other colleges of known reputability may also be considered where the students present extra credits and exceptionally high grades.

Premedical college courses given in or by professional schools, by normal schools, or advance years taken in high schools, will not be considered as acceptable unless the student's credentials are certified by the registrar of the state university of the state in which the college is located, as the equivalent of the first two years of the course leading to the Bachelor of Arts or Science degree in colleges approved by the state university.

PART II. MEDICAL EDUCATION

Executive officers of medical colleges have contributed the reports on which the following statistics are based. Acknowledgment is here made of their splendid cooperation.

DEVELOPMENTS IN MEDICAL EDUCATION

In 1928, the Council on Medical Education and Hospitals discontinued the classification A, B and C, as applied to medical schools, listing them thereafter only as approved or unapproved. There has been some confusion since that time in the use of the terms "class A" and "approved," so that in view of the fact that the term "class A" was still being generally used, a ruling was passed in June, 1931, to the effect that

> The terms "class A" and "approved," when used in reference to medical colleges, shall be synonymous and may be used interchangeably.

The University of Mississippi School of Medicine still continues on a very uncertain basis, its approval being held in abeyance until the effect of recent changes can be determined. A new governor has been elected and a new board of control for the university created. The former chancellor, Dr. Alfred Hume, has been reappointed. In order, however, to balance the budget, the appropriation for the university has been materially reduced. What the effect on the medical school will be is not yet known.

STATISTICS OF MEDICAL COLLEGES

Table 2 gives the figures for the academic year 1931-1932 for the approved medical colleges in the United States shown by classes. The total number for the first year was 6,260, for the second year 5,462, third year 4,932, and fourth year 4,885, or, respectively, 196, 76, 148 and 123 fewer than last year. The total enrolment in the various medical colleges in the United States and Canada, as well as the number of graduates (men and women), graduates with baccalaureate degrees, teachers, tuition fees by classes, name of executive officer and the date of the beginning and ending of the session 1932-1933 is shown in table 7 on pages 738-739. The figures in this table in heavy type are the totals for each of the states. These are also shown collectively in table 3. New York, with the largest number of medical colleges, was the first in the number of medical students, having a total of 2,649; Pennsylvania was second with 2,401, and Illinois third with 2,240. There were 630 graduates in New York, 581 in Pennsylvania and 497 in Illinois.

TABLE 2—*Medical Students Shown by Classes*

Name of College	Enrolled During 1931-1932				
	1st	2d	3d	4th	Total
University of Alabama School of Medicine	31	76			107
University of Arkansas School of Medicine	50	54	48	46	198
University of California Medical School	61	56	57	57	231
College of Medical Evangelists	116	106	92	78	392
University of Southern California School of Medicine	54	44	30		128
Stanford University School of Medicine	53	48	45	49	195
University of Colorado School of Medicine	60	47	47	54	208
Yale University School of Medicine	35	57	29	74	195
Georgetown University School of Medicine	157	153	145	143	598
George Washington University School of Medicine	86	75	64	58	283
Howard University College of Medicine	64	49	50	55	218
Emory University School of Medicine	61	42	54	53	210
University of Georgia Medical Department	40	39	37	38	154
Loyola University School of Medicine	149	130	102	119	500
Northwestern University Medical School	125	130	149	151	555
University of Chicago, Rush Medical College*			.	..	307
University of Chicago, The School of Medicine of the Division of the Biological Sciences*			.	..	289
University of Illinois College of Medicine	175	145	146	123	589
Indiana University School of Medicine	121	114	104	91	430
State University of Iowa College of Medicine	100	83	98	98	379
University of Kansas School of Medicine	70	70	56	58	254
University of Louisville School of Medicine	91	74	89	86	340
Tulane University of Louisiana School of Medicine	125	122	126	110	483
Johns Hopkins University School of Medicine	70	70	72	70	282
University of Maryland School of Medicine and College of Physicians and Surgeons	114	115	88	103	420
Boston University School of Medicine	70	58	54	52	234
Harvard University Medical School	125	119	136	137	517
Tufts College Medical School	124	102	123	116	465
University of Michigan Medical School	128	120	133	133	514
Detroit College of Medicine and Surgery	102	75	71	67	315
University of Minnesota Medical School	130	137	86	112	465
University of Mississippi School of Medicine	26	27	.	..	53
University of Missouri School of Medicine	45	42	6		93
St. Louis University School of Medicine	162	130	115	107	514
Washington University School of Medicine	80	72	92	89	333
Creighton University School of Medicine	97	67	73	51	288
University of Nebraska College of Medicine	98	84	74	80	336
Dartmouth Medical School	17	23	..		40
Albany Medical College	39	23	31	27	120
Long Island College of Medicine	113	108	105	107	433
University of Buffalo School of Medicine	83	64	65	61	273
Columbia University College of Physicians and Surgeons	115	100	91	102	408
Cornell University Medical College	63	52	55	60	230
New York Homeopathic Medical College and Flower Hospital	87	89	75	81	332
University and Bellevue Hospital Medical College	140	101	122	116	479
University of Rochester School of Medicine	50	48	38	36	172
Syracuse University College of Medicine	53	53	40	47	193
University of North Carolina School of Medicine	38	37	..	..	75
Duke University School of Medicine	64	46	19	18	147
Wake Forest College School of Medicine	31	25	..	.	56
University of North Dakota School of Medicine	28	27	..	.	55
University of Cincinnati College of Medicine	90	75	75	67	307
Western Reserve University School of Medicine	78	60	62	58	258
Ohio State University College of Medicine	100	86	92	75	353
University of Oklahoma School of Medicine	69	64	56	47	236
University of Oregon Medical School	66	67	55	58	246
Hahnemann Medical College and Hospital of Philadelphia	141	113	115	112	481
Jefferson Medical College of Philadelphia	158	138	140	144	580
Temple University School of Medicine	115	111	114	108	448
University of Pennsylvania School of Medicine	120	108	140	133	501
Woman's Medical College of Pennsylvania	51	25	29	22	127
University of Pittsburgh School of Medicine	67	65	62	70	264
Medical College of the State of South Carolina	41	30	40	33	144
University of South Dakota School of Medicine	21	21	..	.	42
U [illegible]	147	76	88	128	439
M [illegible]	56	40	45	51	192
Vanderbilt University School of Medicine	50	45	42	53	190
Baylor University College of Medicine	120	93	77	66	356
University of Texas School of Medicine	108	83	66	71	328
University of Utah School of Medicine	35	33	..	.	68
University of Vermont College of Medicine	43	37	39	37	156
University of Virginia Department of Medicine	69	62	59	51	241
Medical College of Virginia	93	81	95	93	362
West Virginia University School of Medicine	81	61	.		142
University of Wisconsin Medical School	104	111	50	53	318
Marquette University School of Medicine	75	66	56	62	259
Totals for 1932	6,260	5,462	4,932	4,885	22,135
Totals for 1931	6,456	5,538	5,080	4,908	21,982

* School operated on the quarter system, and students are not promoted by classes.

EVENTS OF THE YEAR

The University of Missouri School of Medicine, which last fall inaugurated clinical teaching and offered a third year program of instruction, has been compelled to defer the establishment of the fourth year of the curriculum. For the present, at least, it will continue to operate as a two year school.

The University of Southern California School of Medicine, by means of its affiliation with the Los Angeles County General Hospital, Unit No. 1, has been giving instruction to its third year class. The Council, at its meeting on May 8, 1932, voted

> That the course for the first two years as now given continue to receive the Council's approval and that the curriculum outlined for the third and fourth years be endorsed.

FIFTH YEAR MEDICAL STUDENTS

The fifteen medical colleges in the United States and Canada which require a fifth, or intern, year before the M.D. degree is conferred are listed in table 4, with the number of students enrolled in this year. There were 1,177 enrolled, as compared with 1,025 in United States schools only during 1930-1931. This year there were 1,067 fifth year students in United States schools.

TABLE 3.—*Medical Colleges, Students and Graduates by States*

State	No. Colleges	Students	Graduates
Alabama	1	107	...
Arkansas	1	198	46
California	4	946	180
Colorado	1	208	53
Connecticut	1	195	44
District of Columbia	3	1,099	246
Georgia	2	364	93
Illinois	5	2,240	497
Indiana	1	430	94
Iowa	1	3.9	99
Kansas	1	254	53
Kentucky	1	340	88
Louisiana	1	483	168
Maryland	2	702	168
Massachusetts	3	1,216	305
Michigan	2	829	196
Minnesota	1	465	129
Mississippi	1	53	...
Missouri	3	940	192
Nebraska	2	624	129
New Hampshire	1	*40*	...
New York	9	2,649	630
North Carolina	3	281	18
North Dakota	1	53	...
Ohio	3	918	193
Oklahoma	1	236	47
Oregon	1	246	55
	6	2,401	581
	1	144	33
	1	42	...
Tennessee	3	821	232
Texas	2	684	138
Utah	1	68	...
Vermont	1	156	36
Virginia	2	603	140
West Virginia	1	142	...
Wisconsin	2	577	113
Totals	76	22,135	4,936

TABLE 4.—*1931-1932 Fifth Year Students in Medical Colleges Requiring the Hospital Intern Year for the M.D. Degree*

University of California Medical School	55
College of Medical Evangelists	82
Stanford University School of Medicine	43
Loyola University School of Medicine	113
Northwestern University Medical School	123
University of Chicago, School of Medicine of the Division of the Biological Sciences	12
University of Chicago, Rush Medical College	154
University of Illinois College of Medicine	124
Detroit College of Medicine and Surgery	65
University of Minnesota Medical School	176
University of Cincinnati College of Medicine	60
Marquette University School of Medicine	60
University of Manitoba Faculty of Medicine	42
Dalhousie University Faculty of Medicine	33
University of Montreal Faculty of Medicine	35
Total	1,177

TABLE 5.—*Medical Colleges, Students and Graduates*

Year	No. Colleges	Students	Graduates
1905	160	26,147	5,606
1910	131	21,526	4,440
1915	96	14,891	3,536
1920	85	13,798	3,047
1921	83	14,466	3,186
1922	81	15,635	2,520
1923	80	16,960	3,120
1924	79	17,728	3,562
1925	80	18,200	3,974
1926	79	18,840	3,962
1927	80	19,662	4,035
1928	80	20,545	4,262
1929	76	20,878	4,446
1930	76	21,597	4,565
1931	76	21,982	4,735
1932	76	22,135	4,936

NUMBER OF MEDICAL COLLEGES AND STUDENTS

The total number of undergraduate medical students in the approved schools for the session 1931-1932 (table 5) was 22,135, an increase of 153 over last year. This is the largest number of students enrolled since 1905, when 26,147 students were in attendance at the 160 medical schools then existing. The increase of 153 students over the previous year, however, is less than one half of the increase noted in the corresponding gain in 1930.

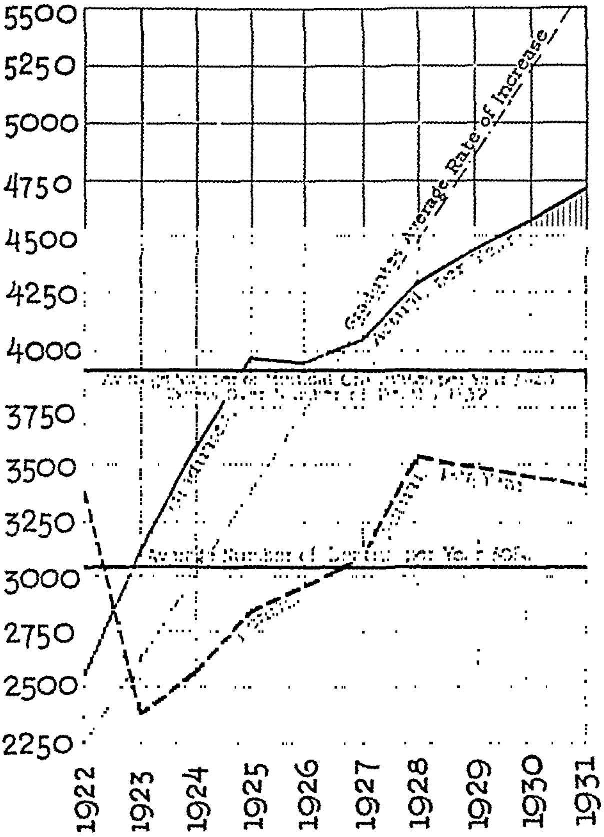


Chart 1.—Showing the increase in medical graduates and the number of deaths in the medical profession.

NUMBER OF MEDICAL GRADUATES

Since 1922 the number of medical graduates in the United States has steadily increased, as shown in chart 1. The number of graduates in 1932 exceeded those of 1931, and while the number of deaths in 1932 cannot be determined, it is believed that the graduates will represent about 50 per cent more than the loss by death in the medical profession each year.

TABLE 6.—*Women in Medicine*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,073	4.1	219	4.0
1910	907	4.0	116	2.6
1915	592	4.0	92	2.6
1920	818	5.8	122	4.0
1925	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5
1931	990	4.5	217	4.6
1932	955	4.3	208	4.2

WOMEN IN MEDICINE

There were 955 women students in medical schools during the session 1931-1932 (table 6), as compared

(Continued on page 740)

TABLE 7.—STATISTICS OF APPROVED MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal No.	NAME AND LOCATION OF COLLEGE	Population of City Where College is Located, 1930 Census	Number of Students Registered 1931-1932		Graduates Since July 1, 1931		Graduates with B.A., B.S., Ph.B.	Number of Teachers	Total Fees (Dollars)				Executive Officer	Session of 1932-1933		Marginal No.
			Men	Women	Men	Women			1st Year	2d Year	3d Year	4th Year		Begins 1932	Ends 1933	
	ALABAMA		**103**	**4**	...	..	...	**21**								
1	University of Alabama School of Medicine, University (Tuscaloosa)*.	20,659	103	4	...	..	...	21	221	241	...	...	Stuart Graves, M.D., Dean	Sept. 7	May 24	1
	ARKANSAS		**194**	**4**	**46**	..	**32**	**87**								
2	University of Arkansas School of Medicine, Little Rock [2]	81,679	194	4	46	..	32	87	165	160	155	155	Frank Vinsonhaler, M.D., Dean	Sept. 21	June 5	2
	CALIFORNIA		**858**	**88**	**162**	**18**	**137**	**996**								
3	University of California Medical School, Berkeley-San Francisco [1,2]	634,394†	200	31	47	8	54	365	200	225	225	225	Langley Porter, M.D., Dean	Aug. 15	May 13	3
4	College of Medical Evangelists, Loma Linda-Los Angeles [1]	1,238,048†	356	36	74	8	10	228	260	250	330	315	E. H. Risley, M.D., Dean, Loma Linda Arthur E. Coyne, M.D., Dean, Los Angeles	July 1	June 25	4
5	University of Southern California School of Medicine, Los Angeles [7]	1,238,048	120	8	...	..	..	180	426	426	426	...	Paul S. McKibben, Ph.D., Dean	Sept. 12	June 3	5
6	Stanford University School of Medicine, San Franc'sco [1]	634,394	182	13	41	2	43	223	387	369	360	360	Henry George Mehrtens, M.D., Dean	Oct. 1	June 10	6
	COLORADO		**201**	**7**	**52**	**1**	**23**	**187**								
7	University of Colorado School of Medicine, Denver [2]	287,861	201	7	52	1	23	187	211	231	181	191	Maurice H. Rees, M.D., Dean	Sept. 26	June 12	7
	CONNECTICUT		**184**	**11**	**42**	**2**	**44**	**254**								
8	Yale University School of Medicine, New Haven	162,655	184	11	42	2	44	254	505	500	500	520	Milton C. Winternitz, M.D., Dean	Sept. 29	June 14	8
	DISTRICT OF COLUMBIA		**1075**	**24**	**240**	**6**	**176**	**477**								
9	Georgetown University School of Medicine, Washington	486,869	598	..	134	..	106	210	445	445	360	360	William Gerry Morgan, M.D., Dean	Sept. 16	June 12	9
10	George Washington University School of Medicine, Washington	486,869	265	18	54	3	29	164	491	491	491	476	Earl B. McKinley, M.D., Dean	Sept. 21	June 3	10
11	Howard University College of Medicine, Washington	486,869	212	6	52	3	11	103	274	274	264	264	Numa P. G. Adams, M.D., Dean	Oct. 3	June 9	11
	GEORGIA		**363**	**1**	**92**	**1**	**44**	**251**								
12	Emory University School of Medicine, Atlanta	360,691	210	..	53	..	39	186	300	300	300	300	Russell H. Oppenheimer, M.D., Dean	Sept. 28	June 12	12
13	University of Georgia Medical Department, Augusta [2]	60,342	153	1	39	1	5	65	105	100	100	100	William Lorenzo Moss, M.D., Dean	Sept. 24	June 5	13
	ILLINOIS		**2147**	**93**	**470**	**27**	**429**	**1474**								
14	Loyola University School of Medicine, Chicago [1]	3,376,438	478	22	110	3	98	267	363	377	332	298	Louis D. Moorhead, M.D., Dean	Oct. 3	June 10	14
15	Northwestern University Medical School, Chicago [1]	3,376,438	540	15	112	4	73	402	355	355	355	355	Irving S. Cutter, M.D., Dean	Oct. 4	June 12	15
16	University of Chicago, Rush Medical College [1]	3,376,438	292	15	140	14	154	274	...	...	380	400	Ernest E. Irons, M.D., Dean	Oct. 3	June 13	16
17	University of Chicago, School of Medicine of the Division of the Biological Sciences [1]	3,376,438	260	20	16	3	19	230	375	375	375	375	B. C. H. Harvey, M.D., Dean of Med. Students	Oct. 3	June 14	17
18	University of Illinois College of Medicine, Chicago [1,2]	3,376,438	577	12	92	3	85	301	200	200	200	215	David John Davis, M.D., Dean	Oct. 3	June 9	18
	INDIANA		**407**	**23**	**88**	**6**	**52**	**231**								
19	Indiana University School of Medicine, Bloomington-Indianapolis [2]	364,161†	407	23	88	6	52	231	187	186	182	177	Burton D. Myers, M.D., Dean, Bloomington W. D. Gatch, M.D., Dean, Indianapolis	Sept. 13	June 12	19
	IOWA		**359**	**20**	**91**	**8**	**57**	**109**								
20	State University of Iowa College of Medicine, Iowa City [2]	15,340	359	20	91	8	57	109	192	192	192	192	Henry Spencer Houghton, M.D., Dean	Sept. 26	June 5	20
	KANSAS		**243**	**11**	**51**	**2**	**40**	**160**								
21	University of Kansas School of Medicine, Lawrence-Kansas City [2]	121,857†	243	11	51	2	40	160	162	154	155	159	H. R. Wahl, M.D., Dean, Kansas City	Sept. 22	June 12	21
	KENTUCKY		**333**	**7**	**88**	..	**41**	**143**								
22	University of Louisville School of Medicine, Louisville	307,745	333	7	88	..	41	143	365	365	370	380	John Walker Moore, M.D., Dean	Sept. 15	June 3	22
	LOUISIANNA		**466**	**17**	**102**	**6**	**61**	**157**								
23	Tulane University of Louisiana School of Medicine, New Orleans	458,762	466	17	102	6	61	157	350	340	325	355	Charles Cassedy Bass, M.D., Dean	Sept. 26	June 7	23
	MARYLAND		**669**	**33**	**159**	**9**	**120**	**617**								
24	Johns Hopkins University School of Medicine, Baltimore	804,874	255	27	59	8	67	384	611	610	610	610	Alan M. Chesney, M.D., Dean	Oct. 4	June 13	24
25	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore [2]	804,874	414	6	100	1	53	233	385	375	375	390	J. M. H. Rowland, M.D., Dean	Sept. 26	June 3	25
	MASSACHUSETTS		**1180**	**36**	**297**	**8**	**220**	**911**								
26	Boston University School of Medicine, Boston	781,188	215	19	47	5	35	167	421	396	396	406	Alexander S. Begg, M.D., Dean	Sept. 22	June 12	26
27	Harvard University Medical School, Boston	781,188	517	..	130	..	129	459	405	400	400	400	David L. Edsall, M.D., Dean	Sept. 26	June 22	27
28	Tufts College Medical School, Boston	781,188	148	17	114	3	56	285	407	402	352	370	A. Warren Stearns, M.D., Dean	Sept. 28	June 19	28
	MICHIGAN		**778**	**51**	**187**	**9**	**118**	**268**								
29	University of Michigan Medical School, Ann Arbor [2]	26,944	471	43	122	8	96	134	200	205	205	202	Arthur C. Curtis, M.D., Secretary	Sept. 26	June 19	29
30	Detroit College of Medicine and Surgery, Detroit [1,2]	1,568,662	307	8	65	1	22	134	250	250	250	250	W. H. MacCraken, M.D., Dean	Sept. 29	June 20	30
	MINNESOTA		**439**	**26**	**122**	**7**	**129**	**331**								
31	University of Minnesota Medical School, Minneapolis [1,2]	464,356	439	26	122	7	129	331	81	81	81	81	Elias P. Lyon, M.D., Dean	Oct. 3	June 17	31
	MISSISSIPPI		**51**	**2**	...	..	...	**15**								
32	University of Mississippi School of Medicine, University (Oxford)* [2,8]	2,890	51	2	...	..	...	15	201	208	...	...	P. L. Mull, M.D., Dean	Sept. 21	June 4	32
	MISSOURI		**929**	**11**	**191**	**1**	**136**	**639**								
33	University of Missouri School of Medicine, Columbia [2,9]	14,967	92	1	...	..	...	40	139	121	133	...	Edgar Allen, Ph.D., Dean	Sept. 12	June 7	33
34	St. Louis University School of Medicine, St. Louis	821,960	514	..	104	..	66	304	385	380	380	400	Alphonse M. Schwitalla, S.J., PhD., Dean	Sept. 21	June 1	34
35	Washington University School of Medicine, St. Louis	821,960	323	10	87	1	70	295	422	417	417	422	W. McKim Marriott, M.D., Dean	Sept. 22	June 6	35
	NEBRASKA		**610**	**14**	**128**	**1**	**122**	**250**								
36	Creighton University School of Medicine, Omaha	214,006	283	5	50	1	46	122	396	381	326	337	John J. McInerny, S.J., Acting Dean	Sept. 22	June 1	36
37	University of Nebraska College of Medicine, Omaha	214,006	327	9	78	..	76	128	217	212	212	212	C. W. M. Poynter, M.D., Dean	Sept. 16	June 5	37
	NEW HAMPSHIRE		**40**	..	...	..	...	**27**								
38	Dartmouth Medical School, Hanover*	3,013	40	..	...	..	...	27	410	400	...	...	John P. Bowler, M.D., Dean	Sept. 22	June 20	38

	NEW YORK		2524	125	601	29	451	2306								
39	Albany Medical College, Albany	127,412	118	2	26	1	23	138	430	405	305	305	Thomas Ordway, M D , Dean	Sept 26	June 12	39
40	Long Island College of Medicine, Brooklyn	2,560,401	425	8	108	2	47	224	545	560	530	560	Adam M Miller, A M , Dean	Oct 3	June 10	40
41	University of Buffalo School of Medicine, Buffalo	573,076	263	10	57	2	17	225	527	522	517	527	Edward W. Koch, M D , Dean	Oct 3	June 14	41
42	Columbia University College of Physicians and Surgeons, New York	6,930,446	379	29	96	6	99	557	535	520	520	540	Willard C Rappleye, M D , Dean	Sept 28	June 7	42
43	Cornell University Medical College, Ithaca New York	6,930,446†	208	31	51	9	60	303	510	500	500	525	G Canby Robinson, M D , Director New York	Sept 26	June 8	43
44	New York Homeopathic Medical College and Flower Hosp , New York	6,930,446	327	5	78		37	169	540	530	530	560	Claude A Burrett, M D , Dean	Sept 19	June 6	44
45	University and Bellevue Hospital Medical College, New York	6,930,446	453	26	110	3	113	313	545	533	522	538	John Wyckoff, M D , Dean	Sept 14	June 7	45
46	University of Rochester School of Medicine, Rochester	328,132	163	9	31	3	30	189	400	400	100	400	George Hoyt Whipple M D , Dean	Sept 19	June 19	46
47	Syracuse University College of Medicine, Syracuse	209,326	188	5	44	3	25	188	500	500	500	510	H G Weiskotten, M D , Dean	Sept 23	June 5	47
	NORTH CAROLINA		272	9	17	1	11	81								
48	University of North Carolina School of Medicine, Chapel Hill* [7]	2,699	73	2				12	250	250			I H Manning, M D , Dean	Sept 23	June 1	48
49	Duke University School of Medicine, Durham	52,037	140	7	17	1	11	55	450	450	450	450	Wilburt C Davison, M D , Dean	Oct 3	Sept 3	49
50	Wake Forest College School of Medicine, Wake Forest*	1,536	69					14	220	225			Thurman D Kitchin, M D , Dean	Sept 13	June 1	50
	NORTH DAKOTA		53	2				13								
51	University of North Dakota School of Medicine, Grand Forks* [2]	17,112	53	2				13	75	75	.	.	H E French, M D , Dean	Sept 20	June 13	51
	OHIO		875	43	186	7	168	599								
52	University of Cincinnati College of Medicine, Cincinnati [1] [2]	451,160	293	14	59	2	58	250	360	360	360	380	Arthur C Bachmeyer, M D , Dean	Sept 19	June 10	52
53	Western Reserve University School of Medicine, Cleveland	900,429	241	17	52	5	57	225	452	435	415	425	Torald Sollmann, M D , Dean	Sept 15	June 15	53
54	Ohio State University College of Medicine, Columbus [2]	290,564	341	12	75		53	124	196	186	186	196	J H J Upham, M D , Dean	Oct 4	June 14	54
	OKLAHOMA		228	8	47		44	137								
55	University of Oklahoma School of Medicine, Oklahoma City [4]	185,389	228	8	47		44	137	128	95	33	25	Lewis Jefferson Moorman M D , Dean	Sept 19	June 5	55
	OREGON		231	15	51	4	55	201								
56	University of Oregon Medical School, Portland [2]	301,815	231	15	51	4	55	201	200	195	190	190	Richard B Dillehunt, M D , Dean	Oct 1	June 12	56
	PENNSYLVANIA		2237	164	548	33	406	1292								
57	Hahnemann Medical College and Hospital of Philadelphia	1,950,961	481		111		58	183	405	402	352	375	William A Pearson, M D , Dean	Oct 3	June 15	57
58	Jefferson Medical College of Philadelphia	1,950,961	580		143		100	248	445	430	425	425	Ross V Patterson, M D , Dean	Sept 21	June 2	58
59	Temple University School of Medicine, Philadelphia	1,950,961	437	11	104	3	57	180	485	455	435	455	William N Parkinson, M D , Dean	Sept 28	June 15	59
60	University of Pennsylvania School of Medicine, Philadelphia	1,950,961	487	14	129	3	125	365	510	510	510	510	William Pepper, M D , Dean	Sept 26	June 21	60
61	Woman s Medical College of Pennsylvania, Philadelphia	1,950,961		127		22	16	94	388	407	432	454	Martha Tracy, M D , Dean	Sept 21	June 7	61
62	University of Pittsburgh School of Medicine, Pittsburgh	669,817	252	12	61	5	50	222	415	400	400	410	R R Huggins, M D , Dean	Sept 26	June 7	62
	SOUTH CAROLINA		142	2	33		26	80								
63	Medical College of the State of South Carolina, Charleston	62,265	142	2	33		26	80	185	185	190	190	Robert Wilson, M D , Dean	Sept 22	June 1	63
	SOUTH DAKOTA		41	1				10								
64	University of South Dakota School of Medicine, Vermillion* [2]	2,8 0	41	1				10	100	100			Augustus G Pohlman, M D , Dean	Sept 12	June 5	64
	TENNESSEE		796	25	224	8	139	472								
65	University of Tennessee College of Medicine, Memphis [3]	253,143	431	8	125	3	38	220	360	340	325	355	O W Hyman Ph D , Dean	Sept 26	June 10	65
66	Meharry Medical College, Nashville	153,866	188	4	51		48	57	250	250	250	260	John J Mullowney, M D , President	Oct 1	May 25	66
67	Vanderbilt University School of Medicine, Nashville	153,866	177	13	48	5	53	195	315	315	315	320	Waller S Leathers, M D , Dean	Sept 27	June 14	67
	TEXAS		662	22	133	5	69	194								
68	Baylor University College of Medicine, Dallas	260,475	347	9	67		21	128	312	297	282	287	W H Moursund, M D , Dean	Sept 26	May 29	68
69	University of Texas School of Medicine, Galveston	52,938	315	13	66	5	48	66	82	78	66	80	George T Bethel, M D , Dean	Oct 1	May 31	69
	UTAH		67	1				24								
70	University of Utah School of Medicine, Salt Lake City*	140,267	67	1				24	100	200			L L Daines, M D , Dean	Sept 27	June 3	70
	VERMONT		146	10	34	2	21	69								
71	University of Vermont College of Medicine, Burlington [2]	24,789	146	10	34	2	21	69	300	300	300	300	J N Jenne, M D , Dean	Sept 16	June 10	71
	VIRGINIA		587	18	137	3	65	209								
72	University of Virginia Department of Medicine, Charlottesville [2]	15,245	234	7	47	2	24	69	322	300	275	270	J Carroll Flippin, M D , Dean	Sept 15	June 13	72
73	Medical College of Virginia, Richmond [2]	182,929	353	9	90	1	41	140	302	302	202	322	Lee E Sutton, Jr , M D , Dean	Sept 11	May 30	73
	WEST VIRGINIA		137	5				22								
74	West Virginia University School of Medicine, Morgantown* [2]	16,186	137	5				22	115	115			John N Simpson, M D , Dean	Sept 8	June 6	74
	WISCONSIN		553	24	109	4	100	296								
75	University of Wisconsin Medical School, Madison [2]	57,899	300	18	48	4	52	171	150	82	60	43	C R Bardeen, M D , Dean	Sept 21	June 19	75
76	Marquette University School of Medicine, Milwaukee [1]	578,249	253	6	61		48	125	383	379	379	364	B F McGrath, M D , Dean	Sept 26	June 7	76
	CANADA [5]		2418	118	475	20	212	1101								
77	University of Alberta Faculty of Medicine, Edmonton, Alta	65,163	196	9	22		9	86	175	225	225	225	Allan Coats Rankin, M D , Dean	Sept 26	May 16	77
78	University of Manitoba Faculty of Medicine, Winnipeg Man [1]	191,998	219	22	33	1	8	125	260	260	260	260	A T Mathers, M D , Dean	Sept 22	May 27	78
79	Dalhousie University Faculty of Medicine, Halifax, N S [1]	57,674	140	2	34		15	69	277	277	282	262	H G Grant, M D , Dean	Sept 14	May 16	79
80	Queen s University Faculty of Medicine, Kingston, Ont	23,096	239		48		3	55	145	183	183	208	Frederick Etherington, M D , Dean	Sept 29	May 21	80
81	University of Western Ontario Medical School, London, Ont	60,685	120	11	34	3	7	71	200	200	208	2 3	A B Macallum, M D , Dean	Sept 21	June 2	81
82	University of Toronto Faculty of Medicine, Toronto, Ont	510,290	605	58	120	15	31	300	170	220	280	220	J G FitzGerald, M D , Dean	Sept 27	May 20	82
83	McGill University Faculty of Medicine, Montreal, Que	607,063	365	12	98	1	61	192	267	267	267	267	Charles F Martin, M D , Dean	Sept 14	April 25	83
84	University of Montreal Faculty of Medicine, Montreal, Que [1]	607,063	231	1	35		27	103	240	220	262	2 2	Louis de Lotbinière Harwood, M D , Dean	Sept 15	June 16	84
85	Laval University Faculty of Medicine, Quebec, Que	94,058	255		51		51	88	160	170	160	160	Arthur Rousseau, M D , Dean	Sept 13	May 31	85
86	University of Saskatchewan Sch of Med Sciences, Saskatoon, Sask *	31,234	49	3				12	80	80			W. S Lindsay, M D , Dean	Sept 24	May 12	86

---

* Gives only the first two years of the medical course

† The population for the following cities are Berkeley, 82,109, Loma Linda, 2,500, Bloomington, 18,227, Lawrence, 13,726, Ithaca, 20,708

[1] Hospital internship required for graduation See table 4 for the *fifth year registration*

[2] The following universities make an additional charge for non residents Arkansas, $100, California, $60, Colorado, $132, Georgia, $200 Illinois, $100, Indiana, $75 first year, $175 next three years, Iowa, $264, Kansas, $ 0 Maryland, $150 Michigan, $100 Detroit, $100, Minnesota, $25, Mississippi $50, Missouri, $30, North Carolina, $100 North Dakota, $90, Ohio State, $150, Cincinnati, $50 (nonresidents of Cincinnati), Oregon, $60, South Dakota, $50 Vermont, $75 (an *activity fee of $50 is charged all students not holding academic* degrees) Virginia, $20 Medical College of Virginia, $100, West Virginia, $250, and Wisconsin, $200

[3] For residents of the state the charge is reduced $ 0 each quarter

[4] Nonresident fee is $200

[5] See College Items for fifth and sixth year fees

[6] Effective September, 1932, the third year and the proposed fourth year will be discontinued

[7] The first two years as now given are approved and the curriculum outlined for the third and fourth years is endorsed

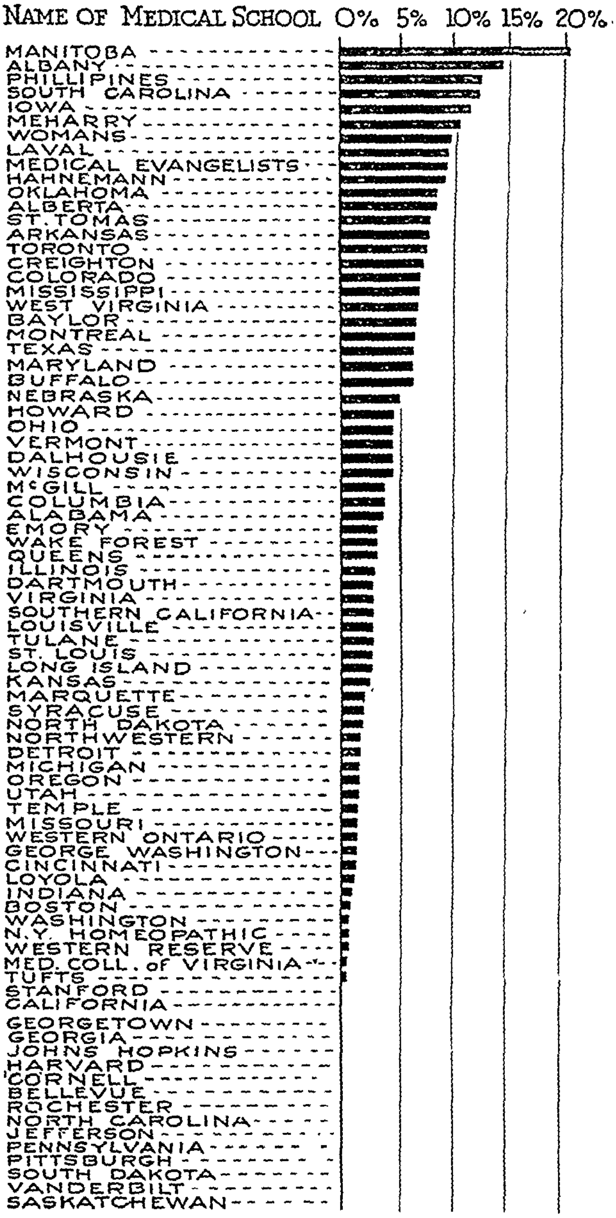
[8] Approval held in abeyance until the reorganization is complete

(Continued from page 737)

with 990 for the previous year, a decrease of 35. They constitute about 4 per cent of the total number of medical students. The number of women students has been quite constant for the past twenty years. There were 208 women graduates this year.

"REPEATERS" IN MEDICAL SCHOOLS

A preliminary report of the number of students being allowed to repeat courses in which they failed was published in The Journal last year.[1] The consolidation of the figures for the freshman year with those reported for the session of 1931-1932 was published in The



Average reported for 1930-1931 and 1931-1932
6 schools on the quarter system not included
7.3% above 10%
23.2% between 5% and 9.9%
50% between 0.1% and 4.9%
19.5% none

Chart 2.—Showing the number of repeaters in the first year class of medical schools.

Table 8.—*Percentage of Classes Repeating Courses in Session 1931-1932 for Scholarship*

Name of College	1st Year	2d Year	3d Year	4th Year	Total
University of Alabama School of Medicine	3.9	3.6	...	...	3.7
University of Arkansas School of Medicine	6.0	1.9	2.1	...	2.5
College of Medical Evangelists	6.9	1.9	1.1	...	2.8
University of Southern California School of Med.	1.9	...	...	...	0.8
University of Colorado School of Medicine	1.7	2.1	...	3.7	1.9
Georgetown University School of Medicine	...	...	2.1	1.4	0.8
Howard University College of Medicine	9.4	2.0	2.0	...	3.7
Emory University School of Medicine	3.3	...	...	...	1.0
Loyola University School of Medicine	0.7	...	...	...	0.2
Northwestern University Medical School	2.4	0.8	...	...	0.7
University of Illinois College of Medicine	2.9	0.7	...	...	1.0
Indiana University School of Medicine	1.7	...	...	...	0.5
State University of Iowa College of Medicine	10.0	2.4	3.1	1.0	4.2
University of Kansas School of Medicine	1.4	5.7	...	...	2.0
University of Louisville School of Medicine	3.3	4.1	...	...	1.8
Tulane University of Louisiana School of Medicine	4.8	4.1	1.6	...	2.7
University of Maryland School of Medicine and College of Physicians and Surgeons	4.4	...	...	...	1.2
Boston University School of Medicine	1.4	...	...	...	0.4
Harvard University Medical School	...	0.8	...	...	0.2
Detroit College of Medicine and Surgery	1.0	...	2.8	...	1.0
University of Mississippi School of Medicine	7.7	...	...	...	3.8
St. Louis University School of Medicine	1.9	3.1	...	...	1.4
Washington University School of Medicine	1.2	...	1.1	...	0.6
Creighton University School of Medicine	12.4	1.5	...	...	4.5
University of Nebraska College of Medicine	5.1	2.4	...	...	2.1
Dartmouth Medical School	5.9	...	...	...	2.5
Albany Medical College	15.4	4.4	6.5	...	7.5
Long Island College of Medicine	3.5	...	...	2.8	1.6
University of Buffalo School of Medicine	6.0	1.6	...	...	2.2
Columbia University College of Physicians and Surgeons	3.5	3.0	...	...	1.7
New York Homeopathic Medical College and Flower Hospital	1.1	4.5	...	...	1.5
University and Bellevue Hospital Medical College	...	...	2.5	...	0.6
Syracuse University College of Medicine	...	7.5	...	...	2.1
Wake *Forest College School of Medicine*	6.5	...	...	...	3.4
University of North Dakota School of Medicine	3.6	...	...	...	1.8
University of Cincinnati College of Medicine	1.1	...	...	...	0.3
Western *Reserve University School of Medicine*	1.3	1.7	3.2	...	1.6
Ohio State University College of Medicine	1.0	...	...	...	0.3
University of Oklahoma School of Medicine	7.2	1.6	...	...	2.5
University of *Oregon Medical School*	1.5	5.9	1.8	...	2.4
Hahnemann Medical College and Hospital of Philadelphia	9.9	5.3	...	...	4.2
Temple University School of Medicine	2.6	0.9	0.9	0.9	1.3
University of Pennsylvania School of Medicine	...	0.9	0.7	...	0.4
Woman's Medical College of Pennsylvania	13.7	16.0	...	...	8.7
Medical College of the State of South Carolina	12.2	...	2.5	...	4.2
Meharry Medical College	8.9	5.0	...	...	3.6
Baylor University College of Medicine	6.7	3.2	...	...	3.1
University of Texas School of Medicine	6.5	7.2	...	...	4.0
University of Utah School of Medicine	2.9	...	...	...	1.5
University of Vermont College of Medicine	2.3	...	...	...	0.6
University of Virginia Department of Medicine	2.9	3.2	...	...	1.7
Medical College of Virginia	1.1	7.4	3.2	...	2.8
West Virginia University School of Medicine	6.2	4.9	...	...	5.6
University of Wisconsin Medical School	1.9	...	...	...	0.6
Marquette University School of Medicine	...	...	3.6	...	0.8
University of Alberta Faculty of Medicine*	7.1	...	...	...	2.2
University of Manitoba Faculty of Medicine	19.3	4.3	2.8	2.5	8.7
Dalhousie University Faculty of Medicine†	...	...	...	...	1.1
Queen's University Faculty of Medicine	6.5	2.0	4.2	...	2.3
University of Western Ontario Medical School	2.4	3.7	...	...	1.4
University of Toronto Faculty of Medicine‡	13.6	7.0	6.7	2.6	6.4
McGill University Faculty of Medicine§	3.1	2.1	1.2	1.1	2.1
University of Montreal Faculty of Medicine	3.8	7.1	...	...	2.2
Laval University Faculty of Medicine#	14.8	6.7	...	2.0	5.9

* Sixth year, 4.5.
† *Fifth year, 6.1.*
‡ Fifth year, 7.1; sixth year, 0.7.
§ Fifth year, 3.1.
# *Fifth year, 3.8.*

Table 9.—*Repetition in Quarter System Schools Session 1931-1932*

Name of School	Number of *Students* Repeating
Yale University School of Medicine	6*
University of Chicago, Rush Medical College	18†
University of Chicago, School of Medicine of the Division of the Biological Sciences	19†
University of Minnesota Medical School	9‡
University of Tennessee College of Medicine	59§
Total	111

* Four failed the qualifying examination, and two failed the final examination.
† Repeated subjects.
‡ Failed the comprehensive examination.
§ Repeated one or more quarters.

---

[1] J. A. M. A. **96**: 1498 (May 2) 1931; **97**: 623 (Aug. 29) 1931.

JOURNAL a few months ago [2] and are reproduced herewith in chart 2. Generally, it may be assumed that those schools which have a two year average of 5 per cent or less are maintaining reasonable academic standards. The percentage of classes repeating courses is shown by individual schools in table 8, referring to the session of 1931-1932. The greatest number of repeaters are, of course, students who have failed in their first year of medicine. Failures in the last two years are relatively few. There were no students repeating courses in seventeen schools, and sixteen schools had students repeating only in the first year.

Listed in table 9 are the number of students repeating courses in the schools operating under the quarter system.

NEGROES IN MEDICAL SCHOOLS

The Negro medical students for the session of 1931-1932 are recorded by classes in table 10. The total number of students and graduates for the year 1930-1931 is also shown for comparison. There were 497 Negro students enrolled in 1930-1931 and 479 during 1931-1932, a decrease of 18.

TABLE 10.—*Negro Medical Students and Graduates*

Name of College	Enrolment by Classes During 1931-1932					
	1st Year	2d Year	3d Year	4th Year	Totals	Graduates
University of California Medical School	..	..	2	..	2	..
College of Medical Evangelists	3	1	1	..	5	1
Howard University College of Medicine	62	48	49	54	213	54
Loyola University School of Medicine	..	..	1	..	1	..
University of Chicago, School of Medicine of the Division of Biological Sciences	2	..	..	..	2	..
University of Chicago, Rush Medical College	..	..	..	1	1	4
University of Illinois College of Medicine	3	..	3	2	8	1
Indiana University School of Medicine	2	..	1	1	4	1
State University of Iowa College of Medicine	..	1	..	1	2	1
University of Kansas School of Medicine	2	..	..	..	2	..
Tufts College Medical School	1	..	1	..	2	..
University of Michigan Medical School	..	3	1	..	4	..
Detroit College of Medicine and Surgery	..	1	..	2	3	1
University of Minnesota Medical School	2	..	..	1	3	1
Dartmouth Medical School	..	1	..	..	1	..
Long Island College of Medicine	1	..	1	..	2	..
Columbia University College of Physicians and Surgeons	.	2	..	..	2	..
New York Homeopathic Medical College and Flower Hospital	2	..	2	..	4	..
University and Bellevue Hospital Medical College	1	..	..	2	3	2
University of Cincinnati College of Medicine	1	..	..	..	1	..
Western Reserve University School of Medicine	1	1	1	..	3	..
Ohio State University College of Medicine	2	1	3	1	7	1
Temple University School of Medicine	..	..	..	1	1	1
University of Pennsylvania School of Medicine	..	1	..	2	3	2
Meharry Medical College	56	40	45	51	192	51
Dalhousie University Faculty of Medicine	1	..	1	1	3	..
McGill University Faculty of Medicine	2	..	1	2	5	1
Total during 1931-1932	144	100	113	122	479	122
Total during 1930-1931	137	127	114	119	497	114

TABLE 11.—*College Fees, 1931-1932*

	Colleges
Under $100	6
$100 to $200	14
200 to 300	22
300 to 400	20
400 to 500	14
Over $500	10
Totals	86

MEDICAL SCHOOL FEES

Reference is directed to table 7, in which fees charged by each medical college are recorded. In table 11, these figures have been collected to show the number of schools in various fee groups. Every college in the United States except one charging $200 or under is a state university, and three of these have fees for residents less than $100. Most state universities, however, require an additional fee of nonresidents, as is indicated in footnote 2, table 7.

STUDENTS FROM THE UNITED STATES IN OTHER SCHOOLS

The migration of medical students to European and Canadian medical schools is continuing with increasing numbers, as shown in table 12. The figures for 1931-

TABLE 12.—*Citizens of the United States Studying Medicine in Institutions in Foreign Countries*

Name of College	Totals		Students, 1931-1932	
			Enrolled	Completing Medical Course
Algeria	0	0		
Université d'Alger			0	0
Argentine Republic	0	0		
Universidad Nacional de Córdoba			0	0
Australia	0	0		
University of Adelaide			0	0
University of Melbourne			0	0
University of Sydney			0	0
Austria	188	6		
Universität Graz			9	0
Universität Innsbruck			25	1
Universität Wien			154	5
Belgium	4	0		
Université Catholique de Louvain			3	0
Université de Liege			1	0
Universiteit te Gent			0	0
Brazil	0	0		
Faculdade de Medicina da Bahia			0	0
Faculdade de Medicina de Saõ Paulo			0	0
Canada	308	62		
Dalhousie University, Halifax, N.S.			25	10
Laval University, Quebec			14	4
McGill University, Montreal, Que.			207	40
Queen's University, Kingston, Ont.			14	0
University of Alberta			0	0
University of Manitoba			2	0
University of Montreal			27	5
University of Saskatchewan			4	..
University of Toronto			2	1
University of Western Ontario			13	2
China	0	0		
Peiping Union Medical College			0	0
Universite L'Aurore, Chang-hai			0	0
Colombia	0	0		
Universidad de Cartagena			0	0
Universidad Nacional, Bogota			0	0
Czechoslovakia	1	0		
Masarykovy University V Brně			1	0
Universita Komenského			0	0
Denmark	0	0		
Kobenhavns Universitet			0	0
Dutch Indies	0	0		
Geneeskundige Hoogeschool, Batavia			0	0
Ecuador	0	0		
Universidad Central, Quito			0	0
Egypt	0	0		
Egyptian University			0	0
Kitchener School of Medicine			0	0
England	61	4		
University of Birmingham			3	0
University of Bristol			3	0
University of Durham			7	0
University of Leeds			0	0
University of Liverpool			1	0
University of London				
Charing Cross Hospital Medical School			0	0
Guy's Hospital Medical School			1	1
King's College			18	0
King's College Hospital Medical School			6	2
London Hospital Medical School			2	0
London School of Medicine for Women			5	0
Middlesex Hospital Medical School			1	0
St. Bartholomew's Hospital Medical College			2	0
St. George's Hospital Medical School			0	0
St. Mary's Hospital Medical School			0	0
St. Thomas's Hospital Medical School			0	0
University College			3	0
University College Hospital Medical School			1	0
Westminster Hospital Medical School			4	0
University of Manchester			0	0
University of Oxford			0	0
University of Sheffield			4	1

---

[2] J. A. M. A. 98: 1181 (April 2) 1932.

Table 12.—*Citizens of the United States Studying Medicine in Institutions in Foreign Countries—Continued*

Name of College	Totals		Students, 1931-1932	
			Enrolled	Completing Medical Course
Finland	0	0		
Helsingfors Universitet			0	0
France	58	4		
Ecole de Médecine, Angers			0	0
Ecole de Médecine de Reims			1	0
Ecole Préparatoire de Médecine, Amiens			0	0
Ecole Préparatoire de Médecine, Nantes			0	0
Université d'Aix-Marseille			1	0
Université de Bordeaux			0	0
Université de Caen			0	0
Université de Grenoble			1	0
Université de Lille			0	0
Université de Lyon			4	2
Université de Nancy			1	0
Université de Paris			42	1
Université de Poitiers, Tours			0	0
Université de Strasbourg			5	0
Université de Toulouse			3	1
French West Africa	0	0		
Ecole de Médecine Indigène, Dakar			0	0
Germany	183	3		
Albertus-Univers			2	0
Eberhard-Karls			3	0
Friedrich-Alexan			1	0
Friedrichs-Universität, Halle			2	0
Ludwig-Maximilians-Universität, Munchen			36	0
eldorf			1	0
[illegible]			1	0
iversität, Bonn			32	0
Universität, Breslau			1	1
ät, Jena			4	0
[illegible]			10	0
[illegible]			0	0
[illegible]			55	0
[illegible]			3	0
Universität Leipzig			26	2
Universität Rostock			4	0
Universität Würzburg			2	0
Greece	0	0		
National University of Athens			0	0
Honduras	0	0		
Universidad Central, Tegucigalpa			0	0
Hungary	14	2		
Magya			1	1
Magya Szeged			4	0
Magyar Királyi Petrus Pázmány Tudományegyetem, Budapest			9	1
Iceland	0	0		
Universitas Islandiae			0	0
India	0	0		
Gra			0	0
Set			0	0
Kin			0	0
University of Lucknow			0	0
Lady Hardinge Medical College, New Delhi			0	0
Patna University			0	0
University of Rangoon			0	0
Ireland	21	0		
National University of Ireland				
University College, Cork			0	0
University College, Dublin			5	0
University College, Galway			0	0
Queen's University, Belfast			0	0
Royal College of Surgeons, Dublin			0	0
University of Dublin			16	0
Italy	155	4		
Re			3	0
Re			27	1
Re			0	0
Re			2	0
Re			1	0
Re			1	0
Re			0	0
Re			13	0
Re			0	0
Regia Universitá di Roma			107	3
Regia Universitá di Sassari			0	0
Regia Universitá di Siena			1	0
Japan*	1	0		
Lithuania	4	0		
Lietuvos Universitetas, Kaunas			4	0
Malaya	0	0		
King Edward VII College of Medicine, Singapore			0	0
Malta	0	0		
University of Malta			0	0
Mexico	1	1		
Escuela de Medicina de Nuevo León, Monterrey			0	0
Escuela Libre de Homeopatia, Mexico			0	0
Escuela Medico Militar, Mexico City			0	0
Universidad Nacional, Mexico			1	1
Netherlands	0	0		
Rijks-Universiteit te Groningen			0	0
Rijks-Universiteit te Utrecht			0	0
Universiteit van Amsterdam			0	0
Universiteit van Leiden			0	0
New Zealand	0	0		
University of Otago, Dunedin			0	0
Norway	0	0		
Kongelige Frederiks Universitets, Oslo			0	0
Philippine Islands	0	0		
University of Santo Tomas			0	0
University of the Philippines			0	0
Poland	1	0		
Uniwersytet Warszawski			1	0
Portugal	0	0		
Faculdade de Medicina do Porto			0	0
Universidade de Lisbon			0	0
Rumania	0	0		
Universitatea din Iasi			0	0
Scotland	257	25		
Anderson College of Medicine, Glasgow			78	5
School of Medicine of the Royal Colleges, Edinburgh			109	1
University of Aberdeen			10	0
University of Edinburgh			52	19
University of Glasgow			8	0
Siam	0	0		
Chulalankarana University			0	0
South Africa, Union of	1	0		
University of Cape Town			0	0
University of the Witwatersrand, Johannesburg			1	0
Spain	0	0		
Facultad de Medicina de Barcelona			0	0
Universidad de Salamanca			0	0
University of Valencia			0	0
Sweden	0	0		
Kungl. Universitet i Lund			0	0
Switzerland	214	1		
Universität Basel			15	0
Universität Bern			99	0
Universität Zurich			75	1
Université de Genève			24	0
Université de Lausanne			1	0
Université de Neuchâtel			0	0
Syria	8	0		
American University of Beirut			8	0
Faculté Francaise de Médecine, Beyrouth			0	0
Turkey	0	0		
Université Istanbul			0	0
Wales	0	0		
Welsh National School of Medicine			0	0
Yugoslavia	2	1		
Beogradskog Universiteta			0	0
Zagrebaskog Universiteta			2	1
	1,482	113		

---

* Name of medical school not known.

1932 have increased 50 per cent over those for 1930-1931. The distribution of these students has, however, somewhat changed, as indicated in the following table, which includes the six countries having the largest enrolment:

	1930-1931	1931-1932	Increase or Decrease
Great Britain	322	339	....
Canada	300	308	....
Austria	114	188	+50%
Italy	78	155	+100%
Germany	72	183	+150%
Switzerland	65	214	+230%

Doubtless one factor in the increase shown by the continental universities has been the active solicitation carried on by the Hamburg American Steamship Company. Letters received from correspondents abroad would seem to indicate that, in some cases at least, the educational standards for these migrating students are less rigid than those prevailing in this country.

RECORDS OF FOREIGN GRADUATES IN STATE LICENSING EXAMINATIONS

In table 13 is shown the record in licensing examinations of the graduates of medical schools other than those of the United States and Canada from which, within five years, five or more graduates have appeared before the various state boards of this country. The

TABLE 13.—*Medical Faculties of Universities in Countries Other Than the United States and Canada Having More Than Five Graduates Examined by Licensing Boards of the United States and Possessions, 1927-1931, Inclusive*

Name of College	Number Examined	Number Passed	Number Failed	Percentage Failed
Austria				
Universität Graz	7	3	4	57.1
Universität Wien	65	43	22	33.8
Cuba				
Universidad de la Habana	18	12	6	33.3
Czechoslovakia				
Deutsche Universität, Prague	16	11	5	31.3
Karlova Universita, Prague	12	7	5	41.7
England				
Licentiate of the Royal College of Physicians and the Royal College of Surgeons	10	10	0	0.0
France				
Université de Paris	21	14	7	33.3
Germany				
[illegible]burg	5	4	1	20.0
[illegible]	12	4	8	66.7
[illegible] Kiel	7	3	4	57.1
[illegible] Berlin	38	23	15	39.5
[illegible]	13	5	8	61.5
[illegible]	6	4	2	33.3
[illegible]	7	1	6	85.7
Thüringische Landesuniversität, Jena	5	2	3	60.0
Universität Leipzig	10	5	5	50.0
Ludwig-Maximilians-Universität, München	18	11	7	38.9
Greece				
National University of Athens	55	12	43	78.2
Hungary				
Magyar Királyi Erzsébet Tudományegyetem, Pecs	5	4	1	20.0
Magyar Királyi Petrus Pázmány Tudományegyetem, Budapest	31	20	11	35.5
Ireland				
University College, Dublin	20	18	2	10.0
Italy				
Regia Universitá di Bologna	12	7	5	41.7
Regia Universitá di Modena	8	2	6	75.0
Regia Universitá di Napoli	176	41	135	76.7
Regia Universitá di Padova	12	3	9	75.0
Regia Universitá di Palermo	34	9	25	73.5
Regia Universitá di Pavia	7	1	6	85.7
Regia Universitá di Roma	42	18	24	57.1
Japan				
Nippon Medical College, Tokyo	6	3	3	50.0
Tokyo Charity Hospital Medical College	7	0	7	100.0
Tohoku Imperial University, Sendai	6	0	6	100.0
Tokyo Imperial University	8	5	3	37.5
Mexico				
Escuela de Medicina de Guadalajara	16	7	9	43.8
Escuela Libre de Homeopatia, Mexico	6	5	1	16.7
Universidad Nacional, Mexico	30	28	2	6.7
Portugal				
Faculdade de Medicina do Porto	12	3	9	75.0
Rumania				
King Ferdinand I Universitatea, Cluj	5	3	2	40.0
Scotland				
University of Edinburgh	20	20	0	0.0
University of Glasgow	6	4	2	33.3
Spain				
Universidad Central de España, Madrid	15	[illegible]	7	46.7
Switzerland				
Universität Bern	10	5	5	50.0
Universität Zurich	5	2	3	60.0
Université de Genève	10	7	3	30.0
Université de Lausanne	6	3	3	50.0
Syria				
American University of Beirut	9	6	3	33.3
Turkey				
Université Istanbul	5	1	4	80.0
Union of Socialistic Soviet Republics				
Charkovsky Medical Institute	24	11	13	54.2
Dragomanov Medical Institute, Kiev	29	12	17	58.6
First Medical Institute, Leningrad	9	5	4	44.4
First Moscow Medical Institute	14	4	10	71.4
North Caucasian Medical Institute, Rostov-on-the-Don	9	4	5	55.6
Odessa Medical Institute	11	4	7	63.6
Saratov Medical Institute	8	3	5	62.5
Second Medical Institute, Leningrad	*8*	*4*	*4*	*50.0*
Tomsk Medical Institute	12	6	6	50.0
Voronezh Medical Institute	6	4	2	33.3
Totals	984	464	520	52.9

Number of schools with no failures	2
Number of schools with 1-25 per cent failures	5
Number of schools with 26-50 per cent failures	25
Number of schools with 51-100 per cent failures	24
Total number of schools	56

number of candidates is 984; of schools represented, 56. Two schools with 30 graduates examined have had no failures. Forty-nine schools with 888 graduates have had more than 25 per cent failures. In this country no school would be approved which had so large a percentage of failures among its graduates and it may fairly be questioned whether state examining boards can reconcile their obligations to the citizens of their own states with the policy of admitting to the licensing examination the graduates of schools which have consistently been characterized by a large percentage of failures.

PART III. EDUCATION OF INTERNS IN APPROVED HOSPITALS

The active coöperation of all hospitals approved for internships has again enabled the Council on Medical Education and Hospitals to present statistics concerning intern education. A total of 676 replies was received in time for tabulation on the special blank provided the hospitals for the purpose of reporting the present status of their educational programs. To date all but *two of the 696 hospitals approved for interns* have reported. The returns were highly satisfactory and greatly appreciated.

MEDICAL GRADUATES AND INTERNSHIPS

In table 14 is shown the number of graduates of 1931 and fifth year students who have served or are serving internships. With the exception of one in the United States and two in Canada, every school in the list has more than 90 per cent of its graduates serving internships. Excluding those schools that require the internship for graduation, 95.5 per cent of all graduates here listed have this added experience. In view of the fact that only one third of the states make it obligatory, this seems to be a remarkable showing.

The year 1931 was not an easy one for hospitals. It is gratifying to note that in the face of quite general adverse circumstances no notable regressions have occurred with respect to intern training. The hospital has seemingly entrenched itself more firmly than ever as a potent factor in medical education.

Table 15 indicates that intern service has been eminently satisfactory. More positions are offered, the number of approved hospitals has increased, and the hiatus existing between the candidates and the number of positions is greater than ever before. As pointed out in the Hospital Number of THE JOURNAL, June 11, there is at present no dearth of applicants for house positions in the hospitals because many interns are deterred from the establishment of a practice until more favorable times. These present tendencies have brought the conviction that, of the several plans now considered toward bridging the gap between the number of medical graduates and the intern positions, the most feasible is the practice of using the same intern over longer periods of time. It may readily be seen that if the present almost universal twelve months service were extended to fifteen or eighteen months, a far greater spread of interns would occur. Another idea that is spreading slowly throughout the hospital world is the practice of contracting for intern services at different times during the year, so that there always will be a few experienced interns in whom confidence can be placed while the new group is becoming accustomed to new duties and hospital methods.

Table 14.—*Graduates of 1931 and Fifth Year Students Who Have Served or Are Serving Internships*

School	Number Graduates	Number Interning
University of Arkansas	32	30
University of California	*	55
College of Medical Evangelists	*	82
Stanford University	*	43
University of Colorado	48	48
Yale University	48	45
Georgetown University	102	96
George Washington University	74	71
Howard University	54	51
Emory University	48	47
University of Georgia	25	25
Loyola University	*	113
Northwestern University	*	123
University of Chicago, School of Medicine of the Division of the Biological Sciences	*	12
University of Chicago, Rush Medical College	*	151
University of Illinois	*	124
University of Indiana	102	96
University of Kansas	58	58
University of Louisville	87	77
Tulane University of Louisiana	100	100
Johns Hopkins University	69	63
University of Maryland	91	87
Boston University	47	47
Harvard University	131	131
Tufts College	124	124
Detroit College of Medicine and Surgery	*	65
University of Michigan	162	162
University of Minnesota	*	176
St. Louis University	113	110
Washington University	78	75
Creighton University	53	14
University of Nebraska	63	61
Albany Medical College	29	27
Long Island College of Medicine	101	98
University of Buffalo	70	69
Cornell University	67	67
Columbia University	101	100
New York Homeopathic Medical College	80	80
University and Bellevue Hospital Medical College	127	121
University of Rochester	34	33
Syracuse University	36	36
University of Cincinnati	*	60
Western Reserve University	58	58
Ohio State University	78	77
University of Oklahoma	43	42
University of Oregon	59	57
Hahnemann Medical College	93	90
Jefferson Medical College	141	141
Temple University	64	60
University of Pennsylvania	134	132
Woman's Medical College of Pennsylvania	24	24
University of Pittsburgh	61	61
Medical College of South Carolina	41	41
University of Tennessee	59	56
Baylor University	72	65
University of Texas	73	70
University of Vermont	31	30
University of Virginia	47	47
Medical College of Virginia	94	91
University of Wisconsin	44	44
Marquette University	*	60
University of Alberta	31	20
University of Manitoba	*	42
Dalhousie University	*	33
Queen's University	41	39
University of Western Ontario	35	33
University of Toronto	136	118
McGill University	100	94
University of Montreal	*	35

* An internship or other acceptable clinical work is a requirement for graduation.

It is now considered axiomatic that the greater the cooperation of the staff the better the internship. In this survey an effort was made to learn which were the commonly accepted staff activities for interns and how generally they were carried into effect.

THE INTERN COMMITTEE

Intern committees represent the recognition on the part of hospital staffs that intern affairs need supervision and that the staff as a whole is too unwieldy a body to serve effectively. As a matter of fact, the intern committee itself does not serve very effectively yet it represents an advance over the older unsupervised methods of intern training.

As usually constituted, intern committees consist of three or four staff members, ordinarily appointed by the chief or president of the staff. Their duties (only occasionally mentioned in the by-laws) consist largely in making contact with students at the medical colleges, deliberating over applications, officially appointing interns, and approving schedules and regulations. The administration of disciplinary measures involved in infractions of hospital rules by the intern corps also devolves on the intern committee.

Table 15.—*Growth of Internships*

	1914	1920	1925	1930	1931
Number of approved hospitals	603	593	528	654	674
Medical graduates	3,594	3,047	3,974	4,565	4,735
Number of internships offered	3,095	3,420	3,832	5,531	6,154

This committee as it now exists represents a useful method of controlling the mechanics of internships. It leaves much to be desired from the point of view of controlling the actual service which the intern gives and the experience which he receives. In only a few hospitals are attempts made to stimulate the other staff members toward assuming a more active attitude regarding the training of interns. In still fewer instances are appraisals made which seek to evaluate the status of the educational program—to check improper tendencies or to supply forms of experience which all interns need and which require effort on the part of many hospitals.

It seems certain, however, that the intern committee is the anlage of the future organization of hospitals as teaching institutions. The present paucity of intern supply shows none but transitory signs of abating, and it would appear that hospitals must offer greater opportunities to attract the available candidates. It is not so much a question of giving interns greater license in the care of patients. Development should come in the direction of more rather than less supervision, in demands for more thorough case study, more sound teaching by qualified staff members rather than the assimilation of a hundred conflicting views on patient care expressed by as many individualistic visiting physicians. Some control of these efforts must be established and one can foresee the gradual assumption on the part of the intern committee of a greater and a much more intimate grasp on the details of intern instruction.

Table 16.—*Autopsy Performance in Approved Hospitals*

Percentage	Number of Hospitals			
	1926	1928	1930	1931
Over 70	14	16	19	24
50 to 70	21	45	56	62
30 to 50	68	132	164	210
15 to 30	146	249	354	295
Under 15	329	189	71	73*

* Twelve not reporting.

The ground work is already prepared in all but 15 of the 676 tabulated hospitals. The replies indicate that the membership of these intern committees is preponderantly medical. There were eighty nonmedical names listed as members, almost entirely made up of lay superintendents whose administrative function often makes it desirable for them to occupy such a position. In all, 125 superintendents were committee members.

It was learned that intern committees meet regularly in 374 hospitals and irregularly or not at all in 302 In response to the question "What steps does the intern committee take to insure good internships?" a great variety of answers was received. Some interpreted the question in the light of steps taken by the hospital to assure itself of a good well qualified intern. Others answered as was more nearly the intention; that is, the steps taken by the intern committee, to regulate the actual service which the intern receives in the hospital.

STAFF ACTIVITIES FOR THE INTERN

The accompanying table presents the reported facts concerning the activities of staffs toward the intern. Staff members fall into three main groups with regard to their reactions to interns. One group is made up of true teachers who either by predilection or by inclination assume the principal burden of instructing the interns Because of their interest, they receive the respect and loyalty of the house staff and it seems unnecessary to say that their patients usually receive the best care. Opposed to this small segment of the staff is a reactionary group which resents the intervention of interns in the care of their patients, and which, far from attempting to teach, assumes an entirely antagonistic attitude It is their feeling that interns as a class are unresponsive to training, especially to that which might come from associating with others more experienced than themselves.

Midway between these two lies another group which is by far the most numerous. Its members respond to the stimulus of fresh ideas of the interns, recognizing in this system a not unimportant means for new knowledge to diffuse itself through the profession from the medical centers They display a most wholesome cooperation toward increasing the experience of the young physicians.

The intern thrust into this milieu of conflicting opinions and points of view is obliged often to exert the most vigorous tenacity in adhering to the methods taught in his medical school. Too frequently he loses some of his idealism in consideration of the inadequacies he encounters. More important, however, is the fact that nothing can efface the imprint of those few compelling personalities who have guided his first faltering footsteps and whose example must affect permanently all his contacts with future patients.

TABLE 17.—*Staff Activities for Interns*

	Yes	No
Intern committees	661	15
Separate clinical pathologic conferences	431	245
Presence at monthly meetings	618	58
Ward rounds	645	31
Staff lectures	460	216
Record conferences	490	186
Departmental conferences	378	298
Journal clubs	83	593

Ward rounds and required presence at the regular monthly meetings are almost universally practiced in these 676 approved hospitals. They are the oldest and possibly the best methods of intern instruction yet devised and at the same time least taxing on the time and energy of the staff members. Bedside teaching and case discussion will probably never be supplanted as a most effective teaching plan. Many conferences as now conducted are of a clinical pathologic type. Four hundred and thirty-one hospitals report that such meetings are held as separate staff functions distinct from the regular monthly meeting. The manner and frequency of presentation differ in hospitals The pathologist is the principal factor in conducting the conferences in 337 hospitals In 294 hospitals, presumably they are conducted by the staff alone As to frequency, the presentations vary from monthly to daily. Some report the plan of holding conferences at each necropsy No one can estimate the benefit that emanates from these conferences, but they are now considered as the best single staff endeavor yet developed.

TABLE 18—*Various Duties Required of Interns*

	1930		1931	
	Yes	No	Yes	No
Presence at necropsies	613	501	581	95
Laboratory service	598	66	485	191
Roentgen ray service	537	127	580	96
Preparation of papers	398	266	460	216
Assigned readings	153	511	225	451
Dispensary service	418	246	449	247

Table 16 indicates the increasing number of hospitals which are moving up into the higher percentage figures of necropsy performance Insistence on adequate pathologic supervision has made possible notable advances. Three hundred and twenty-four hospitals report full time pathologists In 628 hospitals a pathologist is said to perform the necropsies, assisted by, or under the observation of, the interns, and 235 of these pathologists are approved as qualified specialists in their field by this council

Likewise the roentgenologist is frequently called on to teach interns either in his department or at the staff conferences. In 580 of these hospitals the interns receive some training in the department In 239 hospitals there are full time roentgenologists Many serve more than one hospital, so that 418 institutions have the services of men recognized as specialists in radiology by the Council on Medical Education and Hospitals.

The activities of the staff do not stop here As the table shows, in 460 hospitals lectures are given to the interns. The customary method is for the interns to choose the subject and the speaker. In this way the interns obtain advice and accurate information on subjects concerning which they themselves most definitely feel a need Frequently the subject matter of the lectures escapes from the province of scientific or clinical medicine into the fields of the economic and social aspects of medicine.

One reason for the great popularity of interns is the help which they give in keeping hospital records in acceptable form. In fact, there is good reason to believe that if the intern did not provide that service he would be *persona non grata* in most hospitals. History writing under such circumstances—namely, the setting down of observations on every new case admitted to the service, often ten to fifteen or more a day, is not the best plan for the hospital or the intern. The hospital gets slipshod and hastily prepared charts, and the intern develops that acute distaste for record keeping which characterizes so many present-day physicians.

Yet history taking should be an important and essential part of intern training. As now carried out in most hospitals, it has not been particularly educational but is becoming more so. In 490 hospitals, methods have been devised for teaching in connection with record keeping, together with criticisms and appraisals by staff members. Record conferences are held for the discussion of diagnostic conclusions arrived at from the history alone. At these conferences, deficiencies are also noted and improper tendencies on the part of the intern curbed.

So far, journal clubs have not gained much headway. Most approved hospitals have a library of some sort with reference texts and a selection of journals. The use of this material is desultory and unsustained. In only eighty-three hospitals does the intern benefit by reviews of the literature as presented in these clubs.

The use of the libraries, however, is stimulated in other ways. In many hospitals, interns prepare papers for presentation either before the intern staff or before the hospital staff. In more and more hospitals, definite reading assignments are being made and presumably the intern reports the results of his studies. The upkeep of the library is often a staff duty and is supported by a staff levy.

RESIDENTS IN INTERNSHIP HOSPITALS

This council has never, contrary to existing belief, required residents in internship hospitals. It is true that the presence of residents leads to better internships, or at least internships on a sounder educational basis. A resident accepts responsibility seriously, and his supervision of interns is in most instances more conscientious and certainly more constant than could be exerted by a staff member.

Interns themselves are averse to residents only as they represent a limitation of opportunity in the delivery or operating rooms. While it is only reasonable to feel that his efforts in working up a surgical case should be rewarded by an active participation in the treatment, the intervention of a resident ought not to be considered a slight or injury to the intern. The larger view of improvement in surgical practice must be taken, and it would seem that stricter regulation of surgical services for interns in hospitals would have such a tendency. More attention should be paid to diagnosis and postoperative care, to the treatment of fractures and first aid care of emergency cases as the most likely surgical conditions encountered by a young physician and for the care of which his hospital experience should primarily tend to fit him

STATE REQUIREMENTS OF PRELIMINARY EDUCATION

There are now forty-three states (counting Alaska and the District of Columbia) which, either by law, board ruling, or both, have adopted requirements of preliminary education in addition to a standard four-year high school education. Of these, thirty-nine require the two-year standard. Before 1908, not one state had any such requirement. One state has no definite requirement of preliminary education, while six states still require only a high school education. It is interesting to note also that seventeen states now require the completion of a year's internship in a hospital before the candidate is qualified to take the professional examination. All such requirements also have been adopted since 1909.

The states, the number of college years required and the time the higher requirements became or become effective are as follows:

	One Year of College Work		Two Years of College Work		A Hospital Internship	
State Examining Board of	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Applicants
Alabama	...	...	1915 16	1919	....	...
Alaska	1914 15	1918	1918 19	1922	1912 13	1917
Arizona	1914 15	1918	1918 19	1922	...	.
Arkansas	1915 16	1919	1918 19	1922	..	..
California	1920 21	1924	.....	..	......	....
Colorado	1908 09	1912	1910 11	1914	....	....
Connecticut	1915 16	1919	....	...	.....	....
Delaware*	.....	.	......	...	1919 20	1924
Dist of Columbia	...	....	1925 26	1929	1924 25	1929
Florida	1914 15	1918	1918 19	1922	....	....
Georgia	....	...	1918 19	1922	....	....
Idaho	...	..	1915 16	1919	....	....
Illinois	1915 16	1919	1919 20	1923	1918 19	1923
Indiana	1910 11	1914	1911-12	1915	....	...
Iowa	.....	....	1911 12	1915	1919-20	1924
Kansas	1910 11	1914	1918 19	1922	......	....
Kentucky	1914 15	1918	1918 19	1922	.....	....
Louisiana	1915 16	1919	1918 19	1922	.....	....
Maine	1915 16	1919	1916 17	1920	......	...
Maryland	1914 15	1918	1918 19	1922	.....	....
Massachusetts*	..	...	....	....	...	...
Michigan	1914 15	1918	1918 19	1922	1917-18	1922
Minnesota	....	....	1908 09	1912	....	...
Mississippi	1915 16	1919	...	....	....	...
Missouri*	...	....	....	...	......	....
Montana	1914 15	1918	1918 19	1922	....	....
Nebraska*	.	....	......	...	....	...
Nevada*	..	...	....	....	....	....
New Hampshire	...	....	1915 16	1919	....	..
New Jersey	1915-16	1919	1917-18	1921	1911 12	1916
New Mexico	1914 15	1918	1918 19	1922	....	....
New York	1917 18	1921	19 8 19	1922	....	....
North Carolina	1914 15	1918	1918 19	1922	....	...
North Dakota	...	.	1908 09	1912	1913 14	1918
Ohio*		....	......	....	.....	...
Oklahoma	1914 15	1918	1917 18	1921	1927 28	1932
Oregon	...	...	1920 21	1924	....	....
Pennsylvania	1914 15	1918	.....	....	1909 10	1914
Rhode Island	1914 15	1918	1918 19	1922	1912 13	1917
South Carolina	.	...	1918 19	1922	....	....
South Dakota	1908 09	1912	1911 12	1915	1920 21	1925
Tennessee	1916 17	1920	1918 19	1922	....	....
Texas	1914 15	1918	1926 27	1930	....	...
Utah	1913 14	1917	1922 23	1926	1921 22	1926
Vermont	1913 14	1917	1918 19	1922	....	...
Virginia	1914 15	1918	1917 18	1921	......	..
Washington	1914 15	1918	1918 19	1922	1914 15	1919
West Virginia	1917-18	1921	1921 22	1925	1927 28	1932
Wisconsin	.	.	1915 16	1919	1922 23	1927
Wyoming†	.	.	......	...	1926 27	1931

* Requires a four year high school education or its equivalent

† No fixed standard.

HOSPITAL INTERNSHIP REQUIRED BY MEDICAL COLLEGES

Fourteen medical colleges in the United States and three in Canada have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted These colleges and the years when the requirement became effective for matriculants and graduates are as follows:

UNITED STATES

	Affects Matriculants	Affects Graduates
University of Minnesota Medical School	1910 11	1915
Stanford University School of Medicine	1914-15	1919
University of Chicago, Rush Medical College	1914 15	1919
University of California Medical School	1914 15	1919
Marquette University School of Medicine	1915 16	1920
Northwestern University Medical School	1915 16	1920
University of Illinois College of Medicine	1917-18	1922
Loyola University School of Medicine	1917-18	1922
Detroit College of Medicine and Surgery	1919 20	1924
University of Cincinnati College of Medicine	1922 23	1926
College of Medical Evangelists	1922-23	1927
University of Chicago, School of Med of the Division of the Biological Sciences	1025-26	1930
University of Oklahoma School of Medicine	1928-29	1933
University of Southern California School of Medicine	1928 29	1933

CANADA

University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

HOSPITALS APPROVED FOR INTERNSHIPS

By the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago

Revised to Aug. 27, 1932

The following general hospitals containing 221,174 beds are considered in position to furnish acceptable internships for medical graduates.

HOSPITALS, 696. INTERNSHIPS, 6,261

		Number of Beds							Internships					
Name of Hospital	Location	Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
ALABAMA														
Hillman Hospital	Birmingham	149	68	43	28	52	340	No	14	Ap.	12	July	No	Req.
Norwood Hospital	Birmingham	yes	yes	yes	yes	yes	210	No	3	Ap.	12	July	$50	Req.
Employees' Hospital of the Tennessee Coal, Iron and Railroad Co.	Fairfield	104	105	22	48	31	310	No	10	Ap.	12	July	$50	Req.
John A. Andrew Memorial Hospital[1] (col.)	Tuskegee Institute	35	40	yes	yes	5	80	No	3	Ap.	12	July & Sept.	$6	Req.
ARIZONA														
St. Joseph's Hospital	Phoenix	77	64	14	13	20	188	No	2	Ex.	12	July	$25	Op.
ARKANSAS														
Baptist State Hospital	Little Rock	yes	yes	yes	yes	yes	340	No	2	Ap.	12	July	$50	None
Little Rock General Hospital	Little Rock	yes	yes	yes	12	12	140	No	3	Ap.	12	July	$70	Req.
St. Vincent's Infirmary	Little Rock	yes	yes	yes	yes	yes	150	No	4	Ap.	12	June	$50	None
CALIFORNIA														
General Hospital of Fresno County	Fresno	71	79	16	28	196	390	No	8	Ap.	12	July	$25	Req.
Glendale Sanitarium and Hospital	Glendale	30	190	10	..	..	230	No	3	Ap.	12	July	$65 (c)	None
Loma Linda Sanitarium and Hospital	Loma Linda	36	96	18	4	12	166	(3)	3	Ap.	12	July	$65 (c)	Req.
Seaside Hospital	Long Beach	98	78	45	..	79	300	No	3	Ap.	12	Aug.	$25	Req.
California Hospital	Los Angeles	97	48	30	28	104	307	(4)	10	Ap.	12	Feb. & July	$25	Req.
Cedars of Lebanon Hospital[1]	Los Angeles	yes	yes	34	10	..	250	No	7	Ap.	12	July	$25	Req.
Hollywood Clara Barton Memorial Hosp.	Los Angeles	73	42	54	4	69	242	No	7	Ap.	12	July	$50	None
Los Angeles County General Hospital, Unit No	Los Angeles	431	517	77	156	353	1,534	No	82	Ex.	12-24	(1-a)	$10	Op.
Mett	Los Angeles	70	47	47	14	47	225	(5)	6	Ap.	12	(1-b)	No	Req.
St.	Los Angeles	100	85	40	..	..	225	No	3	Ap.	12	July	$50	None
Santa Fe Coast Lines Hospital	Los Angeles	yes	yes	..	..	..	150	(6)	6	Ap.	12	July & Sept.	$22.50	Req.
White Memorial Hospital[1]	Los Angeles	yes	yes	21	6	24	136	(7)	11	Ap.	12	July	(a)	Req.
U. S. Naval Hospital	Mare Island	224	221	..	..	417	862	(8)	8	Both	12	July	(b)	Req.
Alameda County Hospitals[1]	Oakland	170	93	25	30	652	970	(9)	24	Ap.	12	July	$25	None
Orange County Hospital	Orange	21	75	10	20	157	283	No	7	Ap.	12	July	$65 (c)	Req.
Pasadena Hospital	Pasadena	105	43	26	12	24	210	(10)	3	Ap.	12	July	$35	Req.
Sacramento Hospital	Sacramento	100	195	26	16	138	475	No	10	Ap.	12	July	$50	Req.
San Bernardino General Hospital	San Bernardino	30	40	16	15	216	317	No	7	Ap.	12	July	$50	Req.
San Diego County General Hospital	San Diego	134	200	35	57	247	673	No	14	Ap.	12	July	$15-$20	Req.
U. S. Naval Hospital	San Diego	309	697	..	..	..	1,006	(11)	11	Both	12	July	(b)	Req.
French Hospital[1]	San Francisco	yes	yes	10	16	16	225	No	6	Ap.	12	July	$40 (d)	Req.
Hospital for Children[2]	San Francisco	yes	yes	44	48	47	256	No	12	Ap.	12	July	$10	Req.
Letterman General Hospital	San Francisco	427	440	10	20	127	1,024	No	14	Ap.	12	July	(b)	Req.
Mary's Help Hospital	San Francisco	yes	yes	30	20	30	160	No	4	Ap.	12	July	$25	Req.
Mount Zion Hospital	San Francisco	57	58	27	30	22	194	No	6	Ap.	12	June	$25	Req.
St. Joseph's Hospital[1]	San Francisco	118	87	29	12	32	278	No	4	Ap.	12	July	$25	None
St. Luke's Hospital[1]	San Francisco	yes	yes	25	18	26	226	No	4	Ap.	12	July	$15 (e)	Req.
St. Mary's Hospital[1]	San Francisco	128	87	37	34	..	286	No	5	Ap.	12	July	$25	Req.
San Francisco Hospital[1]	San Francisco	167	285	28	54	802	1,336	(12)	41	Ap.	12	July	$10	Op.
Southern Pacific General Hospital	San Francisco	200	200	..	..	..	400	(13)	15	Ap.	12	July	$30	Rep.
Stanford University Hospitals (including Lane Hospital)[1]	San Francisco	40	31	27	38	204	340	No	12	Ap.	12	July	$10	Req.
U. S. Marine Hospital	San Francisco	275	197	..	..	..	472	(14)	10	Ap.	12	July	(b)	None
University of California Hospital[1]	San Francisco	87	59	53	32	56	287	No	19	Ap.	12	June	$10	Req.
Santa Clara County Hospital	San Jose	53	93	22	36	292	496	No	8	Ap.	12	July	$30 (f)	Req.
St. Francis Hospital[1]	Santa Barbara	35	30	15	5	15	100	(15)	2	Ap.	12	July	$25	Req.
Santa Barbara Cottage Hospital	Santa Barbara	36	169	18	8	..	231	(15)	9	Ap.	12	July	$20	Req.
Santa Barbara General Hospital	Santa Barbara	29	50	10	14	114	217	(16)	3	Ap.	12	July	$20	Req.
COLORADO														
Boulder-Colorado Sanitarium and Hosp.[1]	Boulder	17	76	8	yes	8	109	No	1	Ap.	12	June	$50	Req.
Beth-El General Hospital	Colorado Springs	yes	yes	yes	yes	yes	104	No	1	Ap.	12	July	$25	Req.
Glockner Sanatorium and Hospital	Colorado Springs	yes	yes	yes	..	150	238	No	1	Ap.	12	July	$25	None
St. Francis Hospital[1]	Colorado Springs	yes	yes	13	yes	75	150	No	1	Ap.	12	July	$30	Op.
Colorado General Hospital[1]	Denver	yes	yes	yes	yes	yes	176	No	10	Ap.	12	Jan. & July	$25	Req.
Denver General Hospital	Denver	95	71	66	46	232	510	No	12	Ap.	18	Jan. & July	$30	Req.
Fitzsimons General Hospital	Denver	243	1,492	15	..	90	1,840	(17)	Varies	Both	12	July	(b)	None
Mercy Hospital	Denver	yes	yes	yes	yes	yes	190	(18)	4	Ap.	12	July	$25	Req.
Presbyterian Hospital[1]	Denver	yes	yes	yes	..	yes	175	No	4	Ap.	12	July	$25	None
St. Anthony's Hospital	Denver	yes	yes	23	yes	yes	200	No	4	Ap.	12	July	$25	None
St. Joseph's Hospital	Denver	yes	yes	yes	yes	yes	225	No	3	Ap.	12	July	$30	None
St. Luke's Hospital	Denver	125	34	35	25	30	249	No	6	Ap.	12	July	$25	None
CONNECTICUT														
Bridgeport Hospital	Bridgeport	37	40	60	45	218	400	No	8	Ap.	12	July	$15	Req.
St. Vincent's Hospital	Bridgeport	70	67	35	44	34	250	(19)	6	Ap.	12	July	$20	Req.
Danbury Hospital	Danbury	57	22	21	11	23	134	No	2	Ap.	12	July	$40	None
Hartford Hospital	Hartford	83	80	62	54	501	780	No	18	Ap.	18	Jan. & July	No	None
Municipal Hospital[1]	Hartford	45	38	10	72	68	233	No	4	Ap.	12	July	$50	Req.
St. Francis Hospital	Hartford	180	100	110	30	60	480	(20)	10	Ap.	24	July	$10	Req.
Meriden Hospital	Meriden	43	36	18	15	24	136	No	3	Ap.	12	July	$25 (g)	None
Middlesex Hospital	Middletown	yes	yes	yes	yes	yes	160	No	2	Ap.	12	July & Sept.	$35 (h)	None
New Britain General Hospital	New Britain	95	40	41	31	36	243	No	4	Ap.	12	July	$30	Req.
Grace Hospital	New Haven	yes	yes	yes	yes	yes	287	No	9	Both	18	Jan. & July	(i)	Req.
Hospital of St. Raphael[1]	New Haven	125	25	30	30	40	250	No	6	Ap.	12	July	$25	Req.
New Haven Hospital[1]	New Haven	140	132	40	75	107	494	No	31	Ap.	12-20	(1-c)	No	Req.
Lawrence & Memorial Associated Hospitals	New London	22	18	35	34	121	230	No	3	Ap.	12	July	$25	None
William W. Backus Hospital	Norwich	yes	yes	yes	8	yes	155	No	2	Ap.	12	July & Sept.	$25	Req.
Stamford Hospital[1]	Stamford	92	49	43	26	57	267	No	4	Ap.	12	July	$50	Req.
St. Mary's Hospital	Waterbury	65	70	44	16	69	264	No	4	Ap.	12	July	$25	Req.
Waterbury Hospital	Waterbury	yes	yes	28	15	34	282	No	6	Ap.	12	July & Oct.	$300 yr.	Req.

Numerical and other references will be found on page 755.

		Number of Beds							Internships					
Name of Hospital	Location	Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
DELAWARE														
Delaware Hospital	Wilmington	40	25	24	35	76	200	No	6	Ap.	12	July	$50	Req.
DISTRICT OF COLUMBIA														
Central Disp. and Emergency Hospital	Washington	yes	yes	..	..	yes	280	No	17	Ap.	12	July	$10	Req.
Freedmen's Hospital[1] (col.)	Washington	55	55	45	32	111	298	No	24	Ap.	12	July & Oct.	$10	Req.
Gallinger Municipal Hospital[1]	Washington	163	159	116	58	264	760	No	14	Ap.	12	July	$15	None
Garfield Memorial Hospital[1]	Washington	yes	yes	yes	..	yes	311	No	9	Ap.	12	July	$10 (j)	Req.
Georgetown University Hospital	Washington	yes	yes	44	10	yes	267	No	8	Both	12	July	$10	Req.
George Washington University Hospital[1]	Washington	40	25	25	..	20	110	No	4	Ap.	12	July	$15	Req.
Providence Hospital	Washington	115	54	28	22	58	277	No	8	Ap.	12	July	$10	Req.
St. Elizabeths Hosp.[1] (Med. & Surg. Dept.)	Washington	yes	yes	..	..	yes	325	(21)	4	Both	24	July & Oct.	(b)	Req.
Sibley Memorial Hospital	Washington	91	30	75	14	100	310	No	6	Ap.	12	July	$25	Req.
U. S. Naval Hospital	Washington	84	165	..	..	188	437	(22)	8	Both	12	June	(b)	None
Walter Reed General Hospital	Washington	446	639	18	..	10	1,113	No	15	Ap.	12	July	(b)	None
Washington Sanitarium and Hospital,[1] Takoma Park	Washington	24	136	10	..	..	170	(23)	1	Ap.	12	July	$25	Req.
FLORIDA														
Duval County Hospital	Jacksonville	yes	yes	15	24	51	185	No	6	Ap.	12	July	$30	Req.
St. Luke's Hospital	Jacksonville	yes	yes	22	6	50	175	No	3	Ap.	12	July	$50	Req.
St. Vincent's Hospital	Jacksonville	yes	yes	40	30	40	240	No	2	Ap.	12	July	$40	Op.
James M. Jackson Memorial Hospital	Miami	yes	yes	yes	yes	yes	325	No	10	Ap.	12	July & Sept.	$25	Req.
Tampa Municipal Hospital[1]	Tampa	yes	yes	yes	yes	yes	192	No	5	Ap.	12	July	$25	Req.
GEORGIA														
Georgia Baptist Hospital	Atlanta	93	18	20	9	20	160	No	4	Ap.	12	July	$35 (k)	None
Grady Hospital (White Unit)	Atlanta	62	54	42	39	100	297	No	13	Both	12	July	$15	Req.
Grady Hospital (Colored Unit)	Atlanta	73	52	30	15	93	263	No	12	Both	12	July	$15	Req.
Piedmont Hospital	Atlanta	yes	yes	yes	..	yes	135	No	4	Ap.	12	July	$50	None
University Hospital[1]	Augusta	56	56	10	18	137	277	No	11	Ap.	12	July	$15	Req.
Wesley Memorial Hospital	Emory University	75	75	20	10	20	200	No	6	Ex.	12	July	$35	Req.
Macon Hospital	Macon	yes	yes	yes	yes	yes	170	No	4	Ap.	12	July	$40 (m)	Req.
ILLINOIS														
Alexian Bros. Hosp. (male patients only)	Chicago	131	115	..	10	32	288	(24)	7	Ap.	12	July	$50	None
American Hospital[1]	Chicago	60	40	25	15	10	150	No	4	Ap.	12	June	$25	None
Augustana Hospital	Chicago	yes	yes	yes	yes	yes	375	No	10	Ap.	18-24	Jan. & July	No	None
Chicago Memorial Hospital	Chicago	37	27	20	4	20	108	No	3	Ap.	12	July	$25	Req.
Columbus Hospital	Chicago	83	30	23	23	..	159	No	4	Ap.	12	July	$25	None
Cook County Hospital[1]	Chicago	625	750	250	450	1,242	3,317	No	99	Ex.	18	Jan. & July	No	None
Edgewater Hospital	Chicago	yes	yes	yes	yes	yes	140	No	5	Ap.	12	Jan. & June	$25	None
Englewood Hospital	Chicago	45	25	30	7	30	137	No	4	Ap.	12	Jan. & July	$25	None
Evangelical Hospital	Chicago	52	30	60	18	100	260	No	6	Ap.	12	July	$25 (h)	None
Frances E. Willard Hospital[1]	Chicago	44	32	27	5	32	140	No	6	Ap.	12	July	No	Req.
Garfield Park Hospital	Chicago	yes	yes	yes	yes	yes	196	No	7	Ap.	12	July	No	Op.
Grant Hospital	Chicago	60	34	50	yes	127	271	No	9	Ap.	12	July	No	Req.
Holy Cross Hospital	Chicago	yes	yes	yes	yes	yes	120	No	3	Ap.	12	June	$15	Op.
Hospital of St. Anthony de Padua	Chicago	117	40	48	15	45	265	No	6	Ap.	18	(1-b)	$10	None
Illinois Central Hospital	Chicago	yes	yes	24	..	yes	254	No	8	Ap.	12	(1-b)	No	Req.
Illinois Masonic Hospital[1]	Chicago	yes	yes	yes	yes	yes	159	No	6	Ap.	12	July	No	Req.
Lake View Hospital[1]	Chicago	50	31	31	..	32	144	No	4	Ap.	12	July	$25	None
Lutheran Deaconess Home and Hospital	Chicago	yes	yes	44	6	42	217	No	7	Ap.	12	July	$25	None
Lutheran Memorial Hospital[1]	Chicago	90	50	35	..	..	175	No	4	Ap.	12	July	$25	Req.
Mercy Hospital	Chicago	yes	yes	yes	yes	yes	400	No	12	Ap.	12	July	No	Req.
Michael Reese Hospital[1]	Chicago	49	76	36	108	355	624	(31)	35	Ap.	24	Jan. & July	No	Op.
Mother Cabrini Memorial Hospital[1]	Chicago	59	21	33	12	45	170	No	4	Ap.	12	July	$25	None
Mount Sinai Hospital[1]	Chicago	yes	yes	44	21	44	204	No	8	Both	12	July	No	Op.
Norwegian-American Hospital	Chicago	50	50	30	10	50	190	No	6	Both	12	April & July	$20	Req.
Passavant Memorial Hospital[1]	Chicago	yes	yes	yes	yes	yes	199	No	9	Ap.	12	(1-d)	No	Req.
Presbyterian Hospital[1]	Chicago	106	67	29	50	198	450	No	28	Ap.	12-18	Varies	No	None
Provident Hospital[1] (col.)	Chicago	yes	yes	5	8	yes	65	No	6	Ap.	12	Jan. & June	No	Req.
Ravenswood Hospital[1]	Chicago	yes	yes	40	4	42	196	No	5	Ap.	12	July	$25	None
Research and Educational Hospital, University of Illinois[1]	Chicago	40	50	23	18	241	372	No	12	Ex.	12	July	No	None
Roseland Community Hospital	Chicago	yes	yes	yes	yes	yes	125	No	4	Ap.	12	July	$25 (g)	Op.
St. Anne's Hospital	Chicago	104	51	53	20	66	294	No	7	Ap.	12	June	No	Req.
St. Bernard's Hospital	Chicago	46	82	51	21	30	230	No	8	Ap.	12	July	No	None
St. Elizabeth's Hospital	Chicago	180	110	38	16	43	387	No	6	Ap.	12	July	No	Req.
St. Joseph Hospital	Chicago	70	35	35	25	35	200	No	6	Ap.	12	April & July	No	Op.
St. Luke's Hospital	Chicago	235	124	81	50	169	659	No	29	Both	12	Jan. & July	No	Req.
St. Mary of Nazareth Hospital	Chicago	122	50	38	16	24	250	No	9	Ap.	12	July	No	None
Swedish Covenant Hospital[1]	Chicago	yes	yes	45	yes	45	230	No	6	Ap.	12	March	$30	None
U. S. Marine Hospital	Chicago	35	88	..	..	27	150	(25)	5	Ap.	12	July	(b)	None
University Hospital	Chicago	52	23	10	14	22	121	No	3	Ap.	12	July	$15	Req.
University of Chicago Clinics[1]	Chicago	yes	yes	..	yes	yes	408	(26)	26	Ap.	12	(1-b)	No	Req.
Washington Boulevard Hospital	Chicago	yes	yes	yes	yes	yes	110	No	6	Ap.	18	(1-e)	No	Req.
Wesley Memorial Hospital[1]	Chicago	yes	yes	yes	yes	yes	268	No	12	Ap.	18	Jan. & July	No	None
Women and Children's Hospital[2]	Chicago	yes	yes	25	16	25	125	No	5	Ap.	12	July	No	Req.
Woodlawn Hospital	Chicago	yes	yes	yes	yes	yes	170	No	3	Ap.	12	July	No	None
Decatur and Macon County Hospital[1]	Decatur	yes	yes	24	yes	yes	165	No	3	Ap.	12	July	$25	None
St. Mary's Hospital	East St. Louis	121	84	30	25	35	295	No	4	Ap.	12	July	$25 (h)	None
Evanston Hospital	Evanston	95	36	36	39	65	271	No	12	Ap.	12	(1-b)	No	Req.
St. Francis Hospital	Evanston	125	80	50	45	50	350	No	8	Ap.	12	July	$25	None
U. S. Naval Hospital	Great Lakes	474	365	..	..	192	1,031	(27)	4	Both	12	June	(b)	Req.
St. Joseph's Hospital	Joliet	yes	yes	40	yes	40	232	No	2	Ex.	12	July	$50	Req.
	Oak Park	45	35	33	12	50	175	No	6	Ap.	12	July	$10	None
	Oak Park	170	43	94	20	100	427	No	12	Ap.	12	July & Oct.	No	Req.
	Quincy	90	60	25	15	25	215	No	3	Ap.	12	July	No	None
	Rockford	yes	yes	18	9	yes	110	No	2	Ap.	12	Jan. & July	$35	None
St. Anthony's Hospital	Rock Island	70	44	20	10	24	168	No	1	Ap.	12	Sept.	$35	Op.
INDIANA														
St. Catherine's Hospital	East Chicago	yes	yes	yes	yes	yes	300	No	4	Ap.	12	July	$25 (g)	None
Protestant Deaconess Hospital	Evansville	yes	yes	21	yes	yes	181	No	1	Ap.	12	June	$40	None
Fort Wayne Lutheran Hospital	Fort Wayne	80	43	25	18	23	189	No	2	Ap.	12	July	$25 (g)	None
Methodist Episcopal Hospital	Fort Wayne	71	35	16	10	..	132	No.	2	Ap.	12	July	$25	Req.
St. Joseph Hospital	Fort Wayne	47	131	41	25	106	350	No	4	Ap.	12	July	$25 (g)	None
St. Mary's Mercy Hospital	Gary	60	96	50	15	35	256	No	4	Ap.	12	July	$25 (g)	None
St. Margaret's Hospital	Hammond	111	58	38	28	51	286	No	8	Ap.	12	(1-f)	$35	None
Indiana University Hospitals[1]	Indianapolis	yes	yes	yes	yes	yes	422	(28)	18	Ap.	12	July	$12.50	Req.
Indianapolis City Hospital[1]	Indianapolis	130	120	30	95	185	560	No	27	Ap.	12	July	$12.50	Req.

Numerical and other references will be found on page 755.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
INDIANA—Continued														
Methodist Episcopal Hospital	Indianapolis	yes	yes	61	30	61	471	No	15	Ap.	12	July	$12.50	Req.
St. Vincent's Hospital[1]	Indianapolis	108	15	35	12	35	295	No	8	Ap.	12	July	$50	None
St Elizabeth Hospital	La Fayette	yes	yes	20	18	52	256	No	4	Ap.	12	July	$50	None
Epworth Hospital	South Bend	yes	yes	30	25	37	187	No	3	Ap.	12	July	$50	None
St. Joseph Hospital	South Bend	52	52	22	21	28	175	No	2	Ap.	12	July	$75	Req.
St. Anthony's Hospital[1]	Terre Haute	yes	yes	22	14	yes	192	No	2	Ap.	12	July	$25	None
IOWA														
Mercy Hospital	Cedar Rapids	41	39	21	20	24	145	No	1	Ap.	12	July	$25	Req.
St. Luke's Methodist Hospital[1]	Cedar Rapids	55	40	22	13	20	130	No	1	Ap.	12	July	$25*	None
Jennie Edmundson Memorial Hospital	Council Bluffs	yes	yes	yes	yes	yes	140	No	3	Ap.	12	June	$50	Req.
Mercy Hospital	Council Bluffs	yes	yes	21	12	14	149	No	2	Ap.	12	June	$50	None
Mercy Hospital	Davenport	34	30	16	10	44	134	No	2	Ap.	12	July	$30	None
[illegible]spital.	Des Moines	yes	yes	20	12	12	110	No	5	Ap.	12	July	$30	Req.
[illegible]	Des Moines	70	50	35	15	40	210	No	3	Ap.	12	July	$50	None
[illegible]	Des Moines	yes	yes	yes	yes	yes	279	No	6	Ap.	12	July	$45	Op.
Mercy Hospital	*Des Moines*	yes	yes	27	24	yes	176	(29)	4	Ap.	12	July	$35	None
University Hospitals[1]	Iowa City	yes	yes	yes	yes	yes	711	No	18	Ap.	12	July	(n)	Req.
St. Joseph's Mercy Hospital	Sioux City	yes	yes	22	16	20	200	No	3	Ap.	12	July	$25	None
KANSAS														
Bell Memorial Hospital	Kansas City	80	60	25	45	10	220	(30)	8	Ap.	12	July	$15	Req.
Bethany Methodist Hospital	Kansas City	yes	yes	25	yes	25	170	No	3	Ap.	12	July	$40	None
St. Margaret's Hospital	Kansas City	82	64	15	30	59	250	(54)	5	Ap.	12	July	$25	Req.
St. Francis Hospital	Wichita	100	75	25	30	70	300	No	4	Ap.	12	July	$50	Req.
Wesley Hospital	Wichita	106	36	27	40	26	235	(32)	4	Ap.	12	July	$40 (h)	Req.
KENTUCKY														
St. Elizabeth Hospital	Covington	105	192	32	24	22	375	No	4	Ap.	12	July	$50	Req.
Good Samaritan Hospital	Lexington	60	60	18	30	32	200	(33)	2	Ap.	12	July	$25 (m)	Op.
St. Joseph's Hospital	Lexington	yes	yes	yes	yes	yes	224	No	2	Ap.	12	July	$35	None
Louisville City Hospital[1]	Louisville	120	120	40	60	121	461	(34)	19	Ap.	12	July	$10	Req.
Norton Memorial Infirmary	Louisville	yes	yes	25	15	yes	169	No	3	Ap.	12	July	$20	Req.
St. Anthony's Hospital	Louisville	64	19	20	6	46	155	No	2	Ap.	12	July	$50	None
St. Joseph Infirmary	Louisville	135	75	28	28	60	326	No	2	Ap.	12	July	$50	None
SS. Mary and Elizabeth Hospital	Louisville	yes	yes	14	yes	18	163	No	2	Ap.	12	July	$40	None
LOUISIANA														
Charity Hospital[1]	New Orleans	yes	yes	yes	yes	yes	1,869	No	73	Ap.	12	July	$11	Req.
Flint-Goodridge Hospital of Dillard University (col.)	New Orleans	yes	yes	yes	yes	yes	100	No	5	Ap.	12	July	$10	Req.
Hotel Dieu Hospital	New Orleans	yes	yes	yes	yes	yes	261	No	6	Ap.	12	Jan. & July	$50	None
Southern Baptist Hospital[1]	New Orleans	yes	yes	27	yes	yes	222	No	8	Ap.	12	Jan. & July	$20 (o)	None
Touro Infirmary[1]	New Orleans	yes	yes	11	22	yes	373	No	16	Ap.	12	July	$15	Req.
U. S. Marine Hospital	New Orleans	107	174	..	..	219	500	(35)	15	Ap.	12	July	(b)	Req.
T. E. Schump [illegible]	Shreveport	yes	yes	yes	yes	yes	156	No	2	Ap.	12	July	$75	Op.
Shreveport C [illegible]	Shreveport	yes	yes	yes	yes	yes	441	No	12	Ap.	12	July	$10	None
MAINE														
Eastern Maine General Hospital	Bangor	yes	yes	yes	yes	yes	173	No	3	Ap.	12	July	$25-$50	Req.
Central Maine General Hospital	Lewiston	60	20	24	26	25	155	No	3	Ap.	12	July	No	None
St. Mary General Hospital	Lewiston	58	24	12	25	31	150	No	1	Ap.	12	July	$60	Req.
Maine General Hospital	Portland	yes	yes	yes	yes	yes	225	No	4	Ap.	12	July	No	Op.
MARYLAND														
Baltimore City Hospitals[1]	Baltimore	246	388	yes	..	yes	2,076	No	17	Both	12	July	$25	Req.
Church Home and Infirmary[1]	Baltimore	yes	yes	19	..	19	176	No	10	Ap.	12	July	$15	Op.
Franklin Square Hospital	Baltimore	yes	yes	18	yes	15	144	No	2	Ap.	12	July	$12.50	Req.
Hospital for Women[1]	Baltimore	yes	yes	24	..	24	135	(36)	5	Ap.	12	July	$15	None
Johns Hopkins Hospital[1]	Baltimore	193	148	79	100	394	919	No	60	Ap.	12	July & Sept.	No	Req.
Maryland General Hospital	Baltimore	yes	yes	21	21	yes	228	No	12	Ap.	12	July	$10	Req.
Mercy Hospital	Baltimore	yes	yes	yes	yes	yes	301	No	10	Ap.	12	July	No	Req.
Provident Hospital and Free Disp. (col.)	Baltimore	yes	yes	yes	yes	yes	120	No	8	Ap.	12	June & Oct.	No	Req.
St. Agnes Hospital	Baltimore	72	55	18	20	50	215	No	8	Ap.	12	July	No	Req.
St. Joseph's Hospital	Baltimore	84	46	34	33	92	289	No	13	Ap.	12	July	No	Op.
Sinai Hospital	Baltimore	yes	yes	yes	yes	yes	269	No	23	Ap.	12	July	No	Req.
South Baltimore General Hospital	Baltimore	84	10	10	11	..	115	No	6	Ap.	12	July	$25	Req.
Union Memorial Hospital	Baltimore	yes	yes	21	59	24	335	No	15	Ap.	12	July	No	Req.
U. S. Marine Hospital	Baltimore	70	91	..	..	61	222	(37)	6	Ap.	12	July	(b)	Req.
University of Maryland Hospital	Baltimore	93	67	22	24	69	275	No	13	Ap.	12	July	No	Req.
West Baltimore General Hospital	Baltimore	60	60	20	15	30	185	No	8	Ap.	12	July	$25	Req.
MASSACHUSETTS														
Beverly Hospital	Beverly	yes	yes	16	26	yes	141	No	3	Ap.	12	(1-g)	$25	Op.
Beth Israel Hospital	Boston	102	71	..	25	..	*193*	No	11	*Ex.*	*20*	*(1-d)*	*No*	Req.
Boston City Hospital[1]	Boston	394	444	72	104	1,269	2,283	No	82	Both	12-24	Varies	No	Req.
Carney Hospital	Boston	68	75	18	23	26	210	No	13	Both	12-20	(1-b)	No	Req.
Long Island Hospital[1]	Boston	50	281	29	125	65	550	No	6	Both	12	July	$50	Req.
Massachusetts General Hospital[1]	Boston	212	139	..	30	24	405	No	40	Both	12-25	(1-b)	No	Req.
Massachusetts Memorial Hospitals[1]	Boston	yes	yes	91	40	yes	604	No	12	Ap.	12	July	No	Req.
New England Hospital for Women and Children,[2] Roxbury	Boston	35	15	75	60	75	260	No	6	Ap.	12	July	No	Req.
Peter Bent [illegible]	Boston	94	94	..	..	58	246	No	25	Ex.	12-16½	Varies	No	Req.
St. Elizabe[illegible]	Boston	84	58	59	40	59	300	No	7	Both	21	(1-b)	No	Req.
Brockton Hospital	Brockton	yes	yes	24	yes	27	158	No	3	Ap.	12	June	$25	Req.
Cambridge Hospital	Cambridge	yes	yes	50	75	74	300	(38)	6	Both	18	(1-b)	No	Req.
U. S. Naval Hospital	Chelsea	300	493	..	..	..	793	(39)	10	Both	12	July	(b)	None
Fall River General Hospital	Fall River	40	51	..	25	165	281	No	3	Ap.	12	(1-p)	$492 yr.	Req.
Union Hospital	Fall River	yes	yes	yes	..	yes	175	No	2	Both	12	July	$30-$50	Req.
Burbank Hospital	Fitchburg	yes	yes	25	27	35	211	No	2	Ap.	12	July	$25	Req.
Providence Hospital	Holyoke	yes	yes	25	14	yes	140	No	2	Both	12	July	$25	None
Lawrence General Hospital	Lawrence	yes	yes	20	24	yes	132	No	2	Ap.	12	June	$10	Req.
Lowell General Hospital	Lowell	yes	yes	30	14	55	180	No	1	Ex.	12	July	$25	Req.
St. John's Hospital	Lowell	yes	yes	20	27	24	157	No	3	Ap.	12	June	No	Req.
Lynn Hospital	Lynn	51	30	46	30	46	203	No	4	Ap.	12	June & July	$300 yr.	Req.
St. Luke's Hospital	New Bedford	yes	yes	yes	yes	yes	330	No	4	Ap.	12	July	No	Req.
Newton Hospital	Newton	66	50	46	16	112	290	No	4	Ex.	12	June & July	No	Req.
House of Mercy Hospital	Pittsfield	25	25	32	26	114	222	No	2	Ap.	12	July	$50	Op.
Salem Hospital	Salem	yes	yes	27	19	yes	180	No	3	Both	12	July	$25	Req.
Mercy Hospital	Springfield	164	54	52	50	50	370	No	4	Ap.	12	July	$25	Req.

Numerical and other references will be found on page 755.

		Number of Beds							Internships					
Name of Hospital	Location	Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
MASSACHUSETTS—Continued														
Springfield Hospital	Springfield	yes	yes	..	yes	yes	171	(40)	9	Both	18	Jan. & July	No	Req.
Waltham Hospital [1]	Waltham	yes	yes	53	yes	yes	216	No	4	Ap.	12	Varies	No	Req.
Memorial Hospital	Worcester	yes	yes	30	24	yes	215	No	9	Ap.	18	(1-i)	No	Req.
St. Vincent Hospital	Worcester	yes	yes	yes	yes	yes	277	No	1	Ap.	12	July	No	None
Worcester City Hospital	Worcester	135	110	32	30	93	400	No	16	Ex.	24	(1-j)	No	Req.
MICHIGAN														
St. Joseph's Mercy Hospital	Ann Arbor	60	20	20	15	15	130	(41)	2	Ap.	12	July	$25	Op.
University Hospital [1]	Ann Arbor	190	215	76	110	689	1,280	(42)	30	Ap.	12	July	No	Op.
Leila Y. Post Montgomery Hospital	Battle Creek	yes	yes	yes	yes	yes	200	No	2	Ap.	12	July	$25	Req.
Mercy Hospital	Bay City	35	22	20	29	54	160	No	2	Ap.	12	July	$50	Req.
City of Detroit Receiving Hospital	Detroit	175	200	..	38	287	700	(43)	32	Ap.	12	July	$25	Req.
Evangelical Deaconess Hospital	Detroit	55	35	20	5	20	135	(43)	2	Ap.	12	July	$25	Req.
Grace Hospital [1]	Detroit	108	78	31	68	141	426	(43)	24	Ap.	12	July & Sept.	$25	Req.
Harper Hospital	Detroit	364	114	100	..	172	750	(44)	40	Ap.	12	July	No	Op.
Henry Ford Hospital [1]	Detroit	yes	yes	65	89	50	574	No	26	Both	12	(1-g)	$125 (c)	Op.
Providence Hospital	Detroit	yes	yes	yes	yes	yes	450	(45)	15	Both	12	July	$25	Req.
St. Joseph's Mercy Hospital	Detroit	yes	yes	21	18	32	170	No	5	Ap.	12	July	$25	Req.
St. Mary's Hospital	Detroit	165	100	30	50	30	375	(46)	10	Ap.	12	July	$25	Req.
Eloise Infirmary	Eloise	yes	yes	..	..	yes	3,821	(43)	16	Ap.	12	July	$25	Req.
Hurley Hospital [1]	Flint	122	121	55	35	97	430	No	12	Ap.	12	July	$25	Op.
Blodgett Memorial Hospital [1]	Grand Rapids	yes	yes	20	14	yes	150	No	5	Ap.	12	July	No	Req.
Butterworth Hospital	Grand Rapids	92	42	50	26	60	270	No	6	Ap.	12	July	$10	Req.
St. Mary's Hospital	Grand Rapids	118	45	35	20	35	253	(47)	6	Ap.	12	July	$25	Req.
Highland Park General Hospital	Highland Park	yes	yes	30	14	65	195	No	7	Ap.	12	July & Sept.	$25	Req.
W. A. Foote Memorial Hospital	Jackson	yes	yes	34	7	23	156	(48)	3	Ap.	12	July	$50	Req.
Edward W. Sparrow Hospital	Lansing	yes	yes	yes	yes	yes	145	No	2	Ap.	12	July	$50	None
St. Lawrence Hospital	Lansing	yes	yes	yes	yes	yes	128	No	2	Ap.	12	July	$50	None
Hackley Hospital [1]	Muskegon	yes	yes	17	15	24	125	No	2	Ap.	12	July	$50	None
Mercy Hospital	Muskegon	25	25	25	12	37	124	(49)	2	Ap.	12	July	$50	Op.
Saginaw General Hospital	Saginaw	51	38	25	15	27	156	No	3	Ap.	12	July	$45	Req.
St. Mary's Hospital	Saginaw	88	30	20	18	20	176	No	3	Ap.	12	July	$45	Req.
MINNESOTA														
St. Luke's Hospital	Duluth	93	58	30	26	63	270	No	6	Ap.	12	Jan. & July	$12.50	Req.
St. Mary's Hospital	Duluth	84	66	30	30	80	290	No	8	Ap.	12	(1-u)	$12.50	Req.
Abbott Hospital [1]	Minneapolis	25	20	18	45	..	108	No	4	Ap.	12	Jan. & July	$25	None
Asbury Hospital [1]	Minneapolis	68	50	25	..	20	163	No	4	Ap.	12	(1-b)	$25	None
Eitel Hospital	Minneapolis	yes	yes	yes	yes	yes	120	No	3	Ap.	12	July	$25	Op.
Fairview Hospital	Minneapolis	yes	yes	30	10	57	227	(50)	6	Ap.	12	Jan. & July	$25	None
Lutheran Deaconess Home and Hospital	Minneapolis	yes	yes	yes	yes	yes	150	No	3	Ap.	12	July	$25	None
Minneapolis General Hospital [1]	Minneapolis	yes	yes	yes	yes	yes	644	(51)	27	Ap.	12	Jan. & July	No	Req.
Northwestern Hospital [1]	Minneapolis	yes	yes	yes	yes	yes	200	No	3	Ap.	12	Jan. & July	$25 (h)	None
St. Barnabas Hospital	Minneapolis	yes	yes	23	12	23	166	No	2	Ap.	12	July	$25	None
St. Mary's Hospital	Minneapolis	139	54	39	38	30	300	No	6	Ap.	12	April & July	$25	Req.
Swedish Hospital	Minneapolis	163	51	42	15	42	313	No	5	Ap.	12	July	$25	Req.
University Hospital [1]	Minneapolis	114	90	24	88	74	390	(52)	21	Ap.	12	(1-b)	No	Req.
Ancker Hospital	St. Paul	yes	yes	yes	yes	yes	1,050	No	24	Ap.	12	July	No	Req.
Bethesda Hospital	St. Paul	yes	yes	yes	yes	yes	110	No	2	Ap.	12	July	$25	Req.
Charles T. Miller Hospital	St. Paul	yes	yes	21	24	21	216	(53)	6	Ap.	12	July	No	Req.
Midway Hospital	St. Paul	yes	yes	27	yes	yes	127	No	1	Ap.	12	July	$25	Req.
Northern Pacific Beneficial Association Hosp.	St. Paul	yes	yes	yes	..	..	162	No	2	Ap.	12	July	$25	Req.
St. Joseph's Hospital	St. Paul	120	65	30	31	24	270	(50)	6	Ap.	12	July	$25	None
MISSOURI														
St. Louis County Hospital	Clayton	50	50	30	20	48	198	No	3	Ap.	12	July	$25	None
Kansas City General Hospital	Kansas City	60	96	35	24	185	400	No	24	Ap.	12	July	$25	Req.
Kansas City General Hospital No. 2 (col.)	Kansas City	45	60	26	25	118	274	No	12	Ap.	12	July	$20	Req.
Research Hospital [1]	Kansas City	yes	yes	yes	yes	yes	225	No	6	Ap.	12	July	$25	None
St. Joseph Hospital	Kansas City	119	66	22	23	26	256	No	5	Ap.	12	July	$25 (g)	None
St. Luke's Hospital	Kansas City	yes	yes	28	yes	61	240	No	8	Ap.	12	July	$25	None
St. Mary's Hospital	Kansas City	yes	yes	..	yes	yes	175	(54)	6	Ap.	12	July	$50	None
Trinity Lutheran Hospital	Kansas City	40	32	30	..	47	149	No	4	Ap.	12	July	$50	None
Missouri Methodist Hospital [1]	St. Joseph	110	50	15	25	20	220	No	5	Ap.	12	July	$50	Req.
St. Joseph's Hospital	St. Joseph	yes	yes	16	12	yes	150	No	2	Ap.	12	July	$50	None
Alexian Bros. Hosp. (male patients only)	St. Louis	67	68	..	..	115	250	(55)	5	Ap.	12	July	$25	Req.
Barnes Hospital	St. Louis	yes	yes	..	..	yes	270	(56)	32	Ap.	12-18	Jan. & July	No	Op.
Christian Hospital	St. Louis	40	35	25	10	15	125	No	3	Ap.	12	July	$50	Req.
De Paul Hospital	St. Louis	yes	yes	60	30	yes	220	(57)	7	Ap.	12	July	$10 (k)	Req.
Evangelical Deaconess Home and Hospital	St. Louis	60	30	20	15	32	168	No	4	Ap.	12	July	$25 (h)	None
Jewish Hospital	St. Louis	100 •	100	33	24	33	290	No	11	Ap.	12	July	$18	Op.
Lutheran Hospital [1]	St. Louis	yes	yes	yes	yes	yes	197	No	3	Ap.	12	July	$25 (g)	Req.
Missouri Baptist Hospital	St. Louis	yes	yes	41	34	yes	500	No	10	Ap.	12	July	$25	None
St. Anthony's Hospital	St. Louis	100	44	40	16	50	250	No	6	Ap.	12	July	$25	None
St. John's Hospital	St. Louis	125	100	36	39	31	331	No	12	Ap.	12	July	$20	Op.
St. Louis City Hospital	St. Louis	190	260	84	60	246	840	(58)	54	Ap.	12	July	$10 (k)	Op.
St. Louis City Hospital No. 2 (col.)	St. Louis	100	120	53	50	177	500	No	15	Ap.	12	July	$10 (k)	Req.
St. Luke's Hospital	St. Louis	yes	yes	yes	yes	yes	210	No	7	Ap.	12	July	$25	Req.
St. Mary's Group of Hospitals	St. Louis	135	100	50	20	290	595	(59)	22	Ap.	12	July	No	Req.
MONTANA														
St. James Hospital	Butte	71	44	13	13	17	158	No	2	Ap.	12	July	$60	Req.
NEBRASKA														
St. Francis Hospital [1]	Grand Island	76	18	16	20	..	130	No	2	Ap.	12	July	$50	None
Lincoln General Hospital	Lincoln	41	41	22	20	28	152	No	2	Ap.	12	July	$25	Op.
St. Elizabeth's Hospital	Lincoln	yes	yes	yes	yes	yes	200	No	2	Ap.	12	July	$50	None
Bishop Clarkson Memorial Hospital	Omaha	yes	yes	11	10	yes	106	No	3	Ap.	12	June & July	$25	Req.
Creighton Memorial St. Joseph's Hospital	Omaha	203	103	43	32	52	433	No	10	Both	12	July	$20 (o)	None
Douglas County Hospital	Omaha	72	63	18	20	245	418	No	10	Both	12	July	$30	Req.
Evangelical Covenant Hospital	Omaha	30	27	26	17	25	125	No	2	Ap.	12	June	$50	Req.
Immanuel Deaconess Institute	Omaha	50	30	18	12	29	139	No	4	Ap.	12	June	$35	None
Nebraska Methodist Episcopal Hospital	Omaha	yes	yes	25	20	38	215	No	5	Ap.	12	July	$25	None
St. Catherine's Hospital	Omaha	yes	yes	34	yes	yes	173	No	4	Ap.	12	July	$25	None
University of Nebraska Hospital	Omaha	54	54	20	yes	yes	240	No	12	Ap.	12	July	$25	Req.
NEW HAMPSHIRE														
Mary Hitchcock Memorial Hospital [1]	Hanover	yes	yes	28	12	yes	143	No	4	Ap.	12	Jan. & July	No	Req.

Numerical and other references will be found on page 755.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
NEW JERSEY														
Atlantic City Hospital	Atlantic City	yes	yes	yes	yes	yes	316	(60)	8	Ap	12	July	$25	Req.
Bayonne Hospital and Dispensary	Bayonne	32	36	26	26	80	200	No	6	Ap	15	Varies	$25	Req.
Cooper Hospital	Camden	83	32	51	20	153	339	No	8	Ap	12	July	$10 (h)	Op.
West Jersey Homeopathic Hospital	Camden	69	46	68	55	29	267	No	8	Ap	12	June	$25	Op
Alexian Bros. Hosp. (male patients only)	Elizabeth	60	109				169	(61)	2	Ap	12	June	$50	Req
Elizabeth General Hospital and Dispensary	Elizabeth	36	17	33	19	121	226	No	7	Ap	12	July	$25	Req
St. Elizabeth Hospital	Elizabeth	100	50	50	20	40	260	No	5	Ap	12	July	$25	Req.
Englewood Hospital[1]	Englewood	78	31	41	32	64	246	No	8	Ap	18	July	$22	Req
Hackensack Hospital[1]	Hackensack	86	65	30	30	67	278	No	7	Ap	12	July	$25	Req
St Mary Hospital	Hoboken	160	142	33	40	85	460	No	9	Ap	12	July & Oct.	$25	Req
Christ Hospital	Jersey City	60	48	30	24	44	206	No	6	Ap	12	Jan & July	$25	Req.
Jersey City Hospital[1]	Jersey City	200	200	300	100	400	1,200	(62)	48	Ap	12 24	Jan. & July	No	Req.
St. Francis Hospital	Jersey City	126	56	5	38	6	231	No	6	Ap	12	July	$25	Req
Monmouth Memorial Hospital	Long Branch	32	22	13	27	112	206	No	6	Ap	18	July	$25	None
Mountainside Hospital	Montclair	52	36	51	28	173	340	No	10	Ap	12	July	$25	Req
Morristown Memorial Hospital	Morristown	16	16	20	17	91	160	No	4	Ap	12	July to Oct.	$50	Req
Hospital of St Barnabas[1]	Newark	yes	yes	yes	yes	yes	138	No	3	Ap	12	July	$50	Req.
Newark Beth Israel Hospital	Newark	80	80	yes	44	yes	413	No	8	Ap	18	June	$100 yr.	Op
Newark City Hospital[1]	Newark	235	125	70	100	170	700	No	21	Both	21	(1 b)	No	None
Newark Memorial Hospital	Newark	yes	yes	25	26	30	157	No	3	Ap	12	July	$25	Req
St. James' Hospital[1]	Newark	52	20	15	20	18	125	No	3	Ap	12	July	$50	Op
St Michael's Hospital	Newark	109	98		42	51	300	(62)	8	Ap	12	July	$30	Req
St Peter's General Hospital	New Brunswick	yes	yes	25	39	yes	216	No	4	Ap.	12	July & Sept.	$30	Req.
Orange Memorial Hospital	Orange	yes	yes	75	yes	yes	385	No	7	Ap.	12	July	$25	Req.
Passaic General Hospital[1]	Passaic	116	40	20	10	39	225	(63)	3	Ap	12	June & July	$50	Req
St Mary's Hospital[1]	Passaic	76	50	50	24	61	261	No	3	Ap	12	July	$50	Req.
Nathan and Miriam Barnert Memorial Hosp.	Paterson	36	12	18	14	34	114	No	4	Ap	12	July & Oct	$15 $20	Req
Paterson General Hospital	Paterson	yes	yes	yes	yes	yes	320	No	5	Both	12	July	$25	None
St Joseph's Hospital	Paterson	149	92	52	22	130	445	No	6	Ap	12	July	$25	Op.
Muhlenberg Hospital	Plainfield	90	75	35	40	35	275	No	5	Ap.	12	July	$25	Req
Holy Name Hospital	Teaneck	yes	yes	45	33	yes	220	No	5	Ap	12	July	$50	Req.
Mercer Hospital	Trenton	yes	yes	yes	yes	yes	250	No	6	Ap	12	July	$30	Req
St. Francis Hospital	Trenton	143	81	29	29	32	314	No	8	Ap	12	July	$25	Req
William McKinley Memorial Hospital	Trenton	36	40	22	8	40	146	No	3	Ap	12	July	$50	Req.
North Hudson Hospital	Weehawken	yes	yes	28	yes	yes	163	No	8	Ap	24	July	$25	Req.
NEW YORK														
Albany Hospital[1]	Albany	170	77	33	42	195	517	No	16	Ap	12	July	No	Req
Memorial Hospital[1]	Albany	76	34	15	yes	15	140	No	5	Ap	12	July	$50	Req
St Peter's Hospital	Albany	65	60		16	9	150	(64)	5	Ap.	12	July	$40	Req
Auburn City Hospital[1]	Auburn	yes	yes	44	21	yes	155	No	2	Ap.	12	July	$50	Req
Binghamton City Hospital	Binghamton	yes	yes	38	31	yes	450	No	9	Ap	12	July	$50	Op
Beth El Hospital	Brooklyn	79	64	50		48	241	No	12	Both	18	Jan & July	No	Req.
Beth Moses Hospital	Brooklyn	92	50	34	20	30	226	No	15	Both	24	Jan & July	No	Req
Brooklyn Hospital	Brooklyn	94	52	78	yes	yes	294	No	14	Both	24	July	No	Op.
Caledonian Hospital[1]	Brooklyn	yes	yes	yes	yes	yes	150	No	2	Ap	12	June	$25	None
Coney Island Hospital[1]	Brooklyn	150	56	28	36	30	300	No	18	Both	24	July	No	Req.
Cumberland Hospital	Brooklyn.	103	87	46	72	122	430	No	24	Ex	24	July	No	Req.
Greenpoint Hospital	Brooklyn	64	64	34	40	98	300	No	12	Ex	24	July	No	Req
Israel Zion Hospital	Brooklyn.	93	75	96	15	136	415	(65)	24	Ex	24	July & Dec	No	None
Jewish Hospital[1]	Brooklyn	92	77	127	63	311	670	(65)	52	Ap	30	Jan & July	No	Req
Kings County Hospital	Brooklyn	323	497	131	50	659	1,660	No	56	Ap	24	(1 k)	No	Req
Long Island College Hospital	Brooklyn	206	61	30	36	147	480	(66)	35	Ap.	12	July	(m)	Req.
Methodist Episcopal Hospital	Brooklyn	242	54	80	24		400	No	12	Ap	24	July	No	None
Norwegian Lutheran Deaconess Home and Hospital	Brooklyn	52	27	30	15	77	201	No	9	Ap	12	July	No	Req
St. Catherine's Hospital	Brooklyn	109	94	49	yes	44	296	No	12	Ap	24	July	No	Op
St. John's Hospital	Brooklyn	50	43	21	26	94	234	(67)	10	Ap	24	July	$25	Req.
St. Mary's Hospital	Brooklyn	93	70	42	43	42	290	No	10	Ap	24	July	No	Op.
St Peter's Hospital	Brooklyn	147	75		15	13	250	(68)	6	Ap	12	July	No	None
U. S Naval Hospital	Brooklyn	388	330			397	1,115	(69)	12	Both	12	July	(b)	None
Wyckoff Heights Hospital	Brooklyn	80	50	22	18	30	200	No	12	Both	14	July	No	Req
Buffalo and Emergency Hospitals of the Sisters of Charity	Buffalo	yes	yes	yes	yes	yes	335	No	6	Both	12	July	$25	Req.
Buffalo City Hospital[1]	Buffalo	188	114	24	52	685	1,063	No	12	Ap	12	July	$50	Req.
Buffalo General Hospital	Buffalo	170	123	28	30	39	390	No	22	Both	12	July	No	Req
Deaconess Hospital	Buffalo	yes	yes	36	27	35	225	No	6	Ap	12	July	$25	None
Mercy Hospital	Buffalo	39	34	39	17	60	199	No	4	Ap	12	July	$50	Req
Millard Fillmore Hospital	Buffalo	65	171	65	yes	yes	301	No	10	Ap	12	July	$25	Req
Clifton Springs Sanitarium and Clinic[1]	Clifton Springs	36	406	8	yes	8	458	No	3	Ap	12	July	$25	None
Arnot Ogden Memorial Hospital	Elmira	32	32	32	31	86	213	No	2	Ap	12	July	$25 (g)	Req.
St. Joseph's Hospital	Elmira	97	64	27	34	.	222	No	3	Ap	12	July	$50	None
Ideal Hospital[1]	Endicott	40	25	29	13	30	137	No	2	Ap	12	July	$50	None
Flushing Hospital and Dispensary	Flushing.	63	25	47	16	92	243	No	8	Ap.	24	(1 b)	$50	Req.
Mary Immaculate Hospital[1]	Jamaica	yes	yes	51	35	yes	300	No	12	Ap	24	July	No	Req.
Charles S. Wilson Memorial Hospital	Johnson City	55	43	27	32	43	200	No	3	Ap.	12	July	$50	Req.
St John's Long Island City Hospital	Long Island City	128	52	38	21	41	280	No	14	Ap	24	July	No	Req
Nassau Hospital	Mineola	40	20	29	30	86	205	No	6	Ap	18	Jan. & July	$50	None
Mount Vernon Hospital	Mount Vernon	63	36	34	7	40	180	No	4	Both	12	Jan & July	$50-$75	Op.
New Rochelle Hospital	New Rochelle	yes	yes	53	13	yes	147	No	6	Ap.	12	July	$35	Req.
Bellevue Hospital[1]	New York	340	363	136	287	923	2,069	No	76	Ex.	12 24	Jan & July	No	Req.
Beth David Hospital[1]	New York	34	16	12	14	52	128	No	6	Ex.	12	July	$25	Req
Beth Israel Hospital[1]	New York	50	40	36	45	179	350	No	24	Ex.	12 24	July	No	Op.
Columbus Hospital[1]	New York	100	40	40	25	95	300	No	8	Both	12	(1 b)	No	Req.
Fifth Avenue Hospital	New York	104	52	33	72	40	301	No	9	Ap	12 15	(1 b)	No	Req
Fordham Hospital	New York	106	237	102	100	22	567	No	15	Both	20	(1 d)	No	Op.
French Hospital	New York	yes	yes				205	No	12	Ap	18 24	(1 d)	No	Req
Gouverneur Hospital[1]	New York	97	50	41	22		210	No	14	Ex	12 24	Jan & July	No	Op.
Harlem Hospital[1]	New York	75	93	80	56	21	325	No	30	Both	24	Jan & July	No	None
Hospital for Joint Diseases	New York	yes	yes		yes	yes	355	(70)	13	Ex.	24	Jan & July	No	Req
Knickerbocker Hospital	New York	47	35	31	8	93	214	No	8	Both	24	(1-b)	No	Req.
Lebanon Hospital	New York	51	45	18	20	58	192	No	11	Both	20 28	(1 m)	No	Req
Lenox Hill Hospital	New York	81	44	10	48	182	365	No	18	Both	24	Jan & July	(p)	None
Lincoln Hospital	New York	123	82	30	yes	30	265	No	22	Ex.	24	Jan. & July	No	Op.
Metropolitan Hospital[1]	New York	190	366	40	314	710	1,620	No	36	Ex.	12	July	No	Req.
Misericordia Hospital	New York	55	31	118	17	101	322	No	3	Ap.	12	July	$10	Req
Montefiore Hospital for Chronic Diseases[1]	New York	41	128		32	500	701	No	11	Ap	12	Jan. & July	$25	Req.
Morrisania City Hospital[1]	New York	155	155	69	80	80	539	No	32	Ex	24	Jan	No	Op.
Mount Sinai Hospital[1]	New York	yes	yes		yes	yes	700	No	31	Ex.	12 30	Jan. & July	No	None
New York City Hospital	New York	148	306	76	64	466	1,060	No	27	Ex.	18	Jan & July	No	Op
New York Homeopathic Medical College and Flower Hospital[1]	New York	yes	yes	yes	20	yes	251	No	11	Both	12	July	(n)	Req
New York Hospital[1]	New York	109	80	..	28	79	296	No	22	Ap.	24	Jan. & July	No	Req

Numerical and other references will be found on page 753

		Number of Beds							Internships					
Name of Hospital	Location	Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
NEW YORK—Continued														
New York Infirmary for Women and Children[2]	New York	35	20	40	23	37	155	No	5	Ap.	12	(1-n)	$10	Req.
New York Polyclinic Medical School and Hospital	New York	95	50	32	15	145	337	No	8	Ap.	24	(1-b)	No	Req.
New York Postgraduate Medical School and Hospital	New York	102	47	..	62	204	415	No	30	Both	12-28	Varies	No	Req.
Presbyterian Hospital[1]	New York	261	130	114	yes	223	872	(71)	47	Both	25	(1-m)	No	Req.
Roosevelt Hospital	New York	137	80	..	20	154	391	No	19	Both	24	Jan. & July	No	Req.
St. Francis Hospital	New York	295	130	..	yes	..	425	No	8	Ap.	24	Jan. & July	No	None
St. Luke's Hospital[1]	New York	216	216	..	40	54	526	No	22	Both	12-24	Jan. & July	No	None
St. Vincent's Hospital	New York	179	120	..	69	50	418	No	28	Ex.	24	Jan. & July	No	Req.
Sydenham Hospital	New York	39	35	14	19	93	200	No	8	Ex.	24	July	No	None
U. S. Marine Hospital (Ellis Island)	New York	76	103	..	7	354	540	(72)	3	Both	12	July	(b)	None
United Hospital	Port Chester	yes	yes	33	30	36	200	No	5	Ap.	12	July	$50	Req.
Vassar Brothers Hospital	Poughkeepsie	75	55	34	12	28	204	No	4	Ap.	12	July	$30 (o)	Req.
Jamaica Hospital	Richmond Hill	yes	yes	yes	yes	yes	167	No	7	Ap.	18	(1-o)	$30	Req.
Genesee Hospital	Rochester	78	31	30	25	51	215	No	6	Ap.	12	July	$25	Req.
Highland Hospital	Rochester	yes	yes	yes	yes	yes	258	No	5	Ap.	12	July	$25	Req.
Rochester General Hospital	Rochester	64	37	80	50	88	319	No	14	Ap.	12	July	No	Req.
St. Mary's Hospital	Rochester	yes	yes	25	33	yes	211	No	5	Ap.	12	July	No	Req.
Strong Memorial Hospital[1]	Rochester	64	64	15	47	106	296	(73)	28	Ap.	12	July	No	Req.
Ellis Hospital[1]	Schenectady	132	45	39	30	39	285	(74)	7	Ap.	12	July	$25	Req.
St. Vincent's Hospital	Staten Island	90	52	35	23	36	236	No	6	Both	18	(1-b)	No	Req.
Staten Island Hospital	Staten Island	88	68	55	20	44	275	No	6	Ap.	18	(1-b)	No	Req.
U. S. Marine Hospital	Staten Island	123	105	..	..	84	312	(75)	9	Both	12	July	(b)	None
General Hospital of Syracuse	Syracuse	30	28	27	..	25	110	No	3	Ap.	12	July	$25-$50	Req.
Hospital of the Good Shepherd, Syracuse University	Syracuse	yes	yes	28	39	yes	269	(76)	8	Both	12	July & Aug.	No	None
St. Joseph Hospital	Syracuse	107	41	29	23	31	231	No	4	Ap.	12	July	$25	None
Syracuse Memorial Hospital	Syracuse	yes	yes	45	45	yes	250	No	8	Ap.	12	July	No	None
Samaritan Hospital[1]	Troy	47	29	15	19	71	181	No	3	Ap.	12	(1-g)	$50	Req.
Troy Hospital	Troy	124	92	4	30	12	262	(64)	4	Ap.	12	July	$50	Op.
Grasslands Hospital[1]	Valhalla	144	149	14	34	562	903	No	15	Ap.	18	Jan. & July	$35	Req.
St. John's Riverside Hospital	Yonkers	50	29	24	25	72	200	No	5	Ap.	15	July	$50	Op.
St. Joseph's Hospital	Yonkers	46	25	14	10	25	120	No	4	Ap.	12	July	$25 (g)	Req.
NORTH CAROLINA														
Duke Hospital[1]	Durham	146	152	56	52	50	456	No	16	Ap.	12	July	No	Req.
Lincoln Hospital[1] (col.)	Durham	41	36	18	12	1	108	No	3	Ap.	12	(1-p)	$5	Req.
Watts Hospital[1]	Durham	94	40	24	28	24	210	No	3	Ap.	12	July	$15 (h)	Req.
Highsmith Hospital	Fayetteville	39	28	4	10	25	106	No	1	Ap.	12	July	$50	Req.
L. Richardson Memorial Hospital[1] (col.)	Greensboro	34	12	6	12	..	64	No	2	Ap.	12	June & Oct.	$10	Req.
Rex Hospital	Raleigh	yes	yes	16	20	..	125	No	2	Ap.	12	July	$25 (g)	Req.
St. Agnes' Hospital (col.)	Raleigh	54	16	10	10	10	100	No	3	Ap.	12	(1-q)	No	Req.
Park View Hospital[1]	Rocky Mount	yes	yes	yes	yes	yes	100	No	2	Ap.	12	July	$25	None
Davis Hospital	Statesville	yes	yes	yes	yes	yes	132	No	2	Ap.	12	July	...	Op.
James Walker Memorial Hospital	Wilmington	yes	yes	20	21	24	150	No	4	Ap.	12	July	$25 (g)	Req.
City Memorial Hospital	Winston-Salem	75	65	30	15	23	208	(77)	5	Ap.	12	July	$25	Req.
NORTH DAKOTA														
Bismarck Hospital	Bismarck	yes	yes	yes	yes	yes	140	No	2	Ap.	12	July	$50	None
St. John's Hospital	Fargo	88	32	33	15	30	198	No	2	Ap.	12	July	$50	None
OHIO														
City Hospital	Akron	219	55	38	..	38	350	(78)	12	Ap.	12	July	$25	Req.
St. Thomas Hospital	Akron	62	25	29	15	52	183	No	3	Ap.	12	July	$25	None
Mercy Hospital	Canton	75	49	35	21	45	225	No	2	Ap.	12	July	$25	None
Bethesda Hospital[1]	Cincinnati	121	40	55	25	55	296	No	5	Ap.	12	July	$25 (j)	Req.
Christ Hospital	Cincinnati	102	94	49	..	121	366	(79)	8	Both	12	July	$25	Req.
Cincinnati General Hospital[1]	Cincinnati	165	165	50	125	420	925	(80)	30	Ap.	12	July	No	Req.
Deaconess Hospital[1]	Cincinnati	81	38	25	yes	31	175	No	4	Ap.	12	July	$25 (h)	Req.
Good Samaritan Hospital[1]	Cincinnati	163	83	66	46	178	536	No	12	Ap.	12	July	$25	Req.
Jewish Hospital	Cincinnati	yes	yes	37	37	49	272	No	7	Ap.	12	July	$25	None
St. Mary Hospital	Cincinnati	111	59	..	30	..	200	(81)	5	Ap.	12	July	$50	Req.
Charity Hospital	Cleveland	204	48	..	35	14	301	(82)	12	Ap.	12	July	No	Req.
City Hospital[1]	Cleveland	160	160	52	65	1,023	1,460	No	32	Ap.	12	July	No	Req.
Mount Sinai Hospital[1]	Cleveland	44	22	45	22	137	270	(83)	10	Ap.	12	July	$10	Req.
St. Alexis Hospital	Cleveland	108	53	..	yes	59	220	(82)	8	Ap.	12	July	$25	Req.
St. John's Hospital	Cleveland	60	34	28	22	70	214	No	6	Ap.	12	July	$20 (o)	Req.
St. Luke's Hospital	Cleveland	128	88	62	40	82	400	No	17	Ap.	12	July	No	Req.
University Hospitals of Cleveland[1]	Cleveland	120	100	118	135	370	843	(84)	39	Both	12-16	Varies	No	Req.
Woman's Hospital[1]	Cleveland	24	18	31	12	35	120	No	3	Ap.	12	July	$50	None
Grant Hospital	Columbus	120	75	45	30	63	333	No	9	Ap.	12	July	$25 (g)	None
Mount Carmel Hospital	Columbus	136	28	24	6	49	243	(85)	4	Ap.	12	July	$25 (g)	Op.
St. Francis Hospital	Columbus	yes	yes	..	..	yes	150	(86)	6	Ap.	12	July	$16.66	None
	Columbus	115	53	35	32	41	276	No	9	Ap.	12	July	$16.75	Req.
	Columbus	111	105	30	28	..	274	No	8	Ap.	12	July	$25	Req.
	Dayton	yes	yes	46	yes	105	396	No	12	Ap.	12	July	$25	Req.
	Dayton	yes	yes	35	yes	yes	420	No	8	Ap.	12	July	$25	Req.
	Elyria	30	26	29	..	69	154	No	2	Ap.	12	July	$50	None
Mercy Hospital[1]	Hamilton	65	60	45	25	25	220	No	2	Ap.	12	July	$25 (q)	Req.
St. Rita's Hospital	Lima	52	20	16	12	16	116	(87)	2	Ap.	12	July	$25	Op.
Springfield City Hospital	Springfield	41	25	25	19	25	135	No	5	Ap.	12	July	$50	Req.
Flower Hospital	Toledo	yes	yes	31	yes	yes	150	No	3	Ap.	12	July	$25	None
Lucas County General Hospital	Toledo	80	84	34	50	67	315	No	8	Ap.	12	July	$50	Req.
Mercy Hospital	Toledo	46	35	20	yes	24	125	No	3	Ap.	12	July	$25	Req.
St. Vincent's Hospital	Toledo	88	123	45	53	78	387	No	9	Ap.	12	July	$25 (q)	Req.
	Toledo	yes	yes	25	22	yes	275	No	5	Ap.	12	July	$25	Req.
	Youngstown	yes	yes	yes	yes	yes	300	No	6	Ap.	12	July	$20 (j)	Req.
	Youngstown	200	85	75	40	50	450	(88)	12	Ap.	12	July	$20	Req.
OKLAHOMA														
St. Anthony Hospital	Oklahoma City	yes	yes	yes	yes	yes	290	No	8	Ap.	12	July	$25	None
State University Hospitals[1]	Oklahoma City	50	50	17	50	279	446	No	12	Ap.	12	July	$10 (h)	Req.
Wesley Hospital	Oklahoma City	yes	yes	31	yes	yes	150	No	4	Ap.	12	July	$50	None
Morningside Hospital	Tulsa	yes	yes	28	20	37	250	No	4	Ap.	12	July	$25 (h)	Req.
St. John's Hospital	Tulsa	yes	yes	25	25	yes	273	No	4	Ap.	12	July	$25 (q)	Req.
OREGON														
Emanuel Hospital	Portland	108	43	66	yes	66	283	(89)	6	Ap.	12	July	$20	Req.
Good Samaritan Hospital[1]	Portland	yes	yes	24	21	yes	330	No	8	Ap.	12	July	$20	None
	Portland	yes	yes	yes	yes	yes	320	(90)	14	Ap.	12	July	$20	Req.
	Portland	yes	yes	22	18	24	144	No	3	Ap.	12	July	$75 (c)	None
	Portland	218	100	36	12	36	402	(91)	10	Ap.	12	July	$20	None
PENNSYLVANIA														
Abington Memorial Hospital	Abington	102	58	66	29	12	267	No	7	Ap.	12	July	No	Req.
Allentown Hospital[1]	Allentown	173	58	27	42	25	325	No	8	Ap.	12	July	No	Req.

Numerical and other references will be found on page 755.

		Number of Beds							Internships					
Name of Hospital	Location	Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
PENNSYLVANIA—Continued														
Sacred Heart Hospital	Allentown	yes	yes	yes	yes	yes	300	(92)	7	Ap	12	July	No	Req
Altoona Hospital	Altoona	68	41	19	11	41	180	No	5	Ap	12	July	$25	Req
Mercy Hospital	Altoona	yes	yes	10	12	yes	134	No	4	Ap	12	July	$25	Req
St Luke's Hospital	Bethlehem	91	40	20	24	30	205	No	7	Ap	12	July	$20 (r)	Req.
Bryn Mawr Hospital	Bryn Mawr	36	36	24	25	149	270	No	8	Ap	12	July	No	Req
Chester Hospital¹	Chester	114	58	37	29	47	285	No	7	Ap	12	July	$20	Op
G. F. Geisinger Memorial Hospital	Danville	yes	yes	yes	yes	yes	195	No	5	Ap	12	July	No	Req
Easton Hospital	Easton	82	28	23	30	57	220	No	4	Ap	12	July	$25	Req
Hamot Hospital	Erie	43	26	27	20	94	210	No	7	Ap	12	July	$50	None
St Vincent's Hospital	Erie	yes	yes	24	36	yes	214	No	8	Ap	12	July	$25	Op
Harrisburg Hospital¹	Harrisburg	yes	yes	25	16	50	264	No	6	Ap	12	July	$25	Req
Harrisburg Polyclinic Hospital	Harrisburg	yes	yes	yes	yes	yes	182	No	4	Ap	12	July	$50	Req
Conemaugh Valley Memorial Hospital	Johnstown	yes	yes	yes	yes	yes	290	No	6	Ap	12	July	No	Req
Lancaster General Hospital¹	Lancaster	108	45	55	26	39	273	No	6	Ap	12	July	$25	Req
McKeesport Hospital	McKeesport	56	41	40	21	105	263	No	6	Ap	12	July	$25	Req.
Jameson Memorial Hospital¹	New Castle	yes	yes	32	yes	21	151	No	3	Ap	12	July	No	Req
Montgomery Hospital	Norristown	40	20	12	10	43	125	No	3	Ap	12	July	$50	Req
Chestnut Hill Hospital	Philadelphia	23	23	33	12	23	114	No	4	Ap	12	July	$50	Req
Frankford Hospital	Philadelphia	57	24	23	15	23	142	No	6	Ap	12	July	No	Req.
Frederick Douglass Memorial Hosp¹ (col)	Philadelphia	18	9	9	13	9	58	No	2	Ap	12	June	No	Req
Germantown Dispensary and Hospital	Philadelphia	yes	yes	50	38	60	360	No	12	Ap	24	July	No	Req
Graduate Hospital of the University of Pennsylvania	Philadelphia	yes	yes	yes	yes	yes	493	No	16	Both	24	July	No	Req
Hahnemann Medical College Hospital	Philadelphia	yes	yes	yes	yes	yes	592	No	18	Ap.	12	July	No	Req.
Hospital of the Protestant Episcopal Church	Philadelphia	192	198		50	10	450	(93)	16	Ap	24	Jan & July	No	Req.
Hospital of the University of Pennsylvania¹	Philadelphia	134	92	61	69	237	593	No	28	Both	24	July	No	Req
Hospital of the Woman's Medical College²	Philadelphia	yes	yes	37	35	yes	171	No	6	Ap	12	July & Sept	No	Req.
Jefferson Medical College Hospital	Philadelphia	71	76	34	48	459	688	No	25	Both	24	June	No	Req
Jewish Hospital¹	Philadelphia	76	50	56	23	212	417	(94)	18	Both	24	June	No	Req.
Lankenau Hospital	Philadelphia	141	72	30		55	298	No	8	Ap	24	(1 b)	No	Req
Memorial Hospital¹	Philadelphia	52	37	12	12	12	125	No	4	Ap	12	July	$20	Req.
Mercy Hospital¹ (col)	Philadelphia	25	25	21	17	19	107	No	5	Ap	12	July	$10	Req.
Methodist Episcopal Hospital	Philadelphia	yes	yes	yes	yes	yes	301	No	8	Ap	12	July	No	Req
Misericordia Hospital¹	Philadelphia	65	56	36	60	74	291	No	9	Ap	12	July	No	Req.
Mount Sinai Hospital¹	Philadelphia	yes	yes	yes	yes	yes	316	No	14	Both	12	June	No	Op.
Northeastern Hospital	Philadelphia	17	15	30	24	16	102	No	3	Ap	12	June	$50	Req.
Pennsylvania Hospital	Philadelphia	92	113	150	yes	205	560	(95)	18	Ap	24	Varies	No	Req
Philadelphia General Hospital¹	Philadelphia	328	460	60	200	1,467	2,515	(94)	60	Ex	24	July	No	Req.
Presbyterian Hospital	Philadelphia	yes	yes	41	24	57	324	No	11	Both	24	July	No	Req
St. Agnes Hospital	Philadelphia	114	90	46	28	68	346	No	10	Ap	12	July	No	Req
St. Joseph's Hospital	Philadelphia	71	55	45	25	74	270	(96)	8	Ap	12	July	No	Req.
St Luke's and Children's Homeopathic Hospitals	Philadelphia	yes	yes	yes	yes	yes	300	No	6	Ap	12	July	No	Req.
St. Mary's Hospital	Philadelphia	107	38	40	25		210	No	7	Ap.	12	July	No	Req.
Temple University Hospital¹	Philadelphia	yes	yes	32	31	yes	356	(97)	14	Ap	24	June	No	Req.
U. S Naval Hospital	Philadelphia	170	269			321	760	(98)	10	Both	12	July	(b)	None
Woman's Hospital²	Philadelphia	41	27	40	22	40	170	No	6	Ap	12	July	No	None
Women's Homeopathic Hospital	Philadelphia	50	50	60		40	200	No	4	Ex	12	July	$20	Req.
Allegheny General Hospital¹	Pittsburgh	90	50	44	58	163	405	No	12	Ap	12	July	No	Req.
Homeopathic Medical and Surgical Hospital and Dispensary¹	Pittsburgh	yes	yes	yes	yes	yes	310	No	8	Ap	12	July	No	Req.
Mercy Hospital¹	Pittsburgh	yes	yes	yes	yes	yes	670	(99)	22	Ap	12	July	No	Req.
Montefiore Hospital¹	Pittsburgh	yes	yes	yes	yes	yes	225	No	7	Ap	12	July	$20	Req.
Passavant Hospital¹	Pittsburgh	yes	yes	yes	yes	yes	170	(100)	6	Ap.	12	July	$10 (h)	Req.
Pittsburgh Hospital	Pittsburgh	yes	yes	28	15	yes	200	No	5	Ap	12	July	$25	Req.
Presbyterian Hospital¹	Pittsburgh	yes	yes	yes	yes	yes	197	(101)	15	Both	12	July	No	Req.
St. Francis Hospital	Pittsburgh	160	107	26	32	205	530	(99)	16	Ap	12	July	No	Req.
St John's General Hospital	Pittsburgh	77	50	18	57		202	No	6	Ap	12	July	$25	Req.
St Joseph's Hospital	Pittsburgh	42	34	8	18	38	140	No	5	Ap	12	July	No	Req
St Margaret Memorial Hospital¹	Pittsburgh	45	45	42	20	21	173	No	4	Ap	12	July	$25	Req
South Side Hospital	Pittsburgh	50	35	10	25	105	225	No	7	Ap	12	July	No	Req
Western Pennsylvania Hospital¹	Pittsburgh	203	176	59	106	107	651	No	20	Ap.	12	July	No	Req.
Pottsville Hospital¹	Pottsville	36	28	18	10	48	140	No	4	Ap	12	July	$25	Req.
Reading Hospital	Reading	97	56	41	36	38	268	No	7	Ap	12	July	No	Req.
St Joseph's Hospital	Reading	73	34	25	18	55	205	No	6	Ap	12	July	$25	Req.
Robert Packer Hospital	Sayre	154	95	17	14		280	No	8	Ap	12	Jan & July	No	Req
Hahnemann Hospital	Scranton	24	24	11	12	54	125	No	4	Ap	12	July	$15	Req.
Moses Taylor Hospital	Scranton	42	36			22	100	(102)	3	Ap	12	July	$30	Req
Scranton State Hospital	Scranton	60	40	6	26	56	188	No	6	Ap	12	July	$8.33	Req
Uniontown Hospital	Uniontown	117	66	15	27		225	No	6	Ap	12	July	$25	Req
Washington Hospital	Washington	yes	yes	yes	yes	yes	166	No	5	Ap	12	July	$50	Req
Chester County Hospital	West Chester	42	42	22	18	31	155	No	4	Ap	12	July	$47.50	Req
Mercy Hospital¹	Wilkes Barre	47	46	20	35	72	220	No	5	Ap	12	July	No	Req
Wilkes Barre General Hospital	Wilkes Barre	164	126	57	35	90	472	No	10	Ap	12	July	No	Req
Columbia Hospital¹	Wilkinsburg	65	55	52	28	4	204	No	5	Ap	12	July	$20	Req
Williamsport Hospital¹	Williamsport	99	69	44	19	44	275	No	5	Ap	12	July	$50	Req
Windber Hospital	Windber	49	28	10	15		102	No	3	Ap	12	July	No	Req.
York Hospital	York	57	56	32	24	25	194	No	6	Ap.	12	July	$35	Req
RHODE ISLAND														
Memorial Hospital	Pawtucket	45	20	26	45	52	188	No	6	Ap	12	(1 r)	$200 yr.	Req.
Homeopathic Hospital	Providence	yes	yes	yes	yes	yes	200	No	4	Ap	12	July	$50	Req
Rhode Island Hospital	Providence	300	125		60	115	600	(103)	18	Ap	24	(1 b)	No	None
St Joseph's Hospital	Providence	69	28	35	50	136	318	No	6	Ap	12	July	No	None
SOUTH CAROLINA														
Roper Hospital	Charleston	85	74	30	18	93	300	No	16	Ap	12	July	$10	Req
Columbia Hospital	Columbia	yes	yes	yes	yes	yes	139	No	3	Ap	12	July	$50 (h)	Req.
Greenville City Hospital	Greenville	yes	yes	15	10	5	125	No	3	Ap	12	July	$50	Req.
Spartanburg General Hospital¹	Spartanburg	yes	yes	yes	yes	yes	286	No	5	Ap	12	July	$15 (j)	Req
TENNESSEE														
Baroness Erlanger Hospital	Chattanooga	68	32	20		126	246	(104)	5	Ap	12	July	$50	Req
Knoxville General Hospital	Knoxville	yes	yes	yes	yes	yes	251	No	10	Ap	12	(1 e)	$25 (j)	Req.
Baptist Memorial Hospital	Memphis	yes	yes	yes	yes	yes	420	No	12	Ap	18	Varies	$25 (h)	None
Memphis General Hospital	Memphis	yes	yes	yes	yes	yes	400	No	18	Ap	18	Monthly	$25	Req.
Methodist Hospital	Memphis	yes	yes	yes	yes	yes	185	No	2	Ap.	12	July	$50	None
St Joseph's Hospital	Memphis	yes	yes	40	20	36	270	No	5	Ap.	12	(1 s)	$40 (j)	None
George W. Hubbard Hospital (col)	Nashville	38	38	19	29	40	164	No	6	Ap.	12	July	$15	Req
Nashville General Hospital	Nashville	31	26	12	39	60	168	No	8	Ap.	12	July	$25	Req.
St Thomas Hospital	Nashville	yes	yes	yes	yes	yes	225	No	8	Ap.	12	July	$40	None
Vanderbilt University Hospital	Nashville	75	63	22	30	25	215	(105)	10	Ap	12	July	$25	None

Numerical and other references will be found on page 755

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
TEXAS														
Hotel Dieu Hospital	Beaumont	50	45	14	10	70	189	No	2	Ap.	12	July	$50	None
Baylor Hospital [1]	Dallas	190	49	50	36	50	375	No	11	Ap.	12	July	$25	Req.
Parkland Hospital	Dallas	yes	yes	35	10	yes	290	(106)	13	Ap.	12	July	$25	Req.
St. Paul's Hospital	Dallas	130	60	60	20	40	310	No	8	Ap.	12	July	$25	Req.
William Beaumont General Hospital	El Paso	166	346	yes	..	..	512	No	5	Both	12	July	(b)	Req.
City and County Hospital [1]	Fort Worth	yes	yes	15	yes	yes	134	No	3	Ap.	12	July	$50	Req.
Harris Clinic-Hospital	Fort Worth	yes	yes	yes	yes	yes	106	No	2	Ap.	12	July	No	Req.
St. Joseph's Hospital	Fort Worth	93	52	20	14	16	195	No	2	Ap.	12	July	$40	None
John Sealy Hospital [1]	Galveston	90	64	20	30	170	374	No	8	Ap.	12	June & July	No	Req.
St. Mary's Infirmary	Galveston	35	40	15	12	63	165	No	3	Ap.	12	June	$25	None
U. S. Marine Hospital	Galveston	35	35	..	yes	30	100	(107)	2	Ap.	12	July	(b)	Req.
Hermann Hospital	Houston	40	40	9	15	92	196	No	5	Ap.	12	July	$25	Req.
Jefferson Davis Hospital	Houston	yes	yes	22	21	yes	185	No	10	Ap.	12	July	$45	Req.
Medical and Surgical Hospital	San Antonio	yes	yes	yes	yes	yes	125	No	2	Ap.	12	July	...	Req.
Robert B. Green Memorial Hospital	San Antonio	yes	yes	27	42	42	237	No	11	Ap.	12	July	$25	Req.
Santa Rosa Hospital	San Antonio	212	100	30	44	..	386	No	6	Ap.	12	July	$40	Req.
Station Hospital, Fort Sam Houston	San Antonio	284	250	16	..	100	650	No	10	Ap.	12	July	(b)	None
Gulf, Colorado and Santa Fe Hospital	Temple	yes	yes	..	..	..	150	(108)	2	Ap.	12	July	$50	None
King's Daughters Clinic and Hospital	Temple	yes	yes	yes	yes	yes	115	No	2	Ap.	12	July	$ 0	Req.
Scott and White Hospital	Temple	yes	yes	yes	yes	yes	150	(108)	4	Ap.	12	July	$50	None
Providence Sanitarium	Waco	78	44	16	12	..	150	No	2	Ap.	12	July	$25	Req.
UTAH														
Thomas D. Dee Memorial Hospital	Ogden	71	39	30	15	30	185	No	3	Ap.	12	Feb. & July	$25	Req.
Dr. W. H. Groves Latter-Day Saints Hosp.	Salt Lake City	216	100	60	20	32	428	No	8	Ap.	12	July	$25 (h)	None
Holy Cross Hospital	Salt Lake City	94	58	43	20	55	270	No	3	Ap.	12	July	$35 (k)	None
St. Mark's Hospital	Salt Lake City	yes	yes	13	yes	yes	150	No	2	Ap.	12	July	$35	None
Salt Lake General Hospital	Salt Lake City	40	56	17	10	86	209	No	6	Ap.	12	July	$30 (s)	Req.
VERMONT														
Mary Fletcher Hospital	Burlington	yes	yes	15	22	yes	150	No	5	Ap.	12	July & Sept.	$50	Req.
VIRGINIA														
Hospital of St. Vincent de Paul	Norfolk	yes	yes	22	32	22	270	No	5	Ap.	12	July	$25	Req.
Norfolk Protestant Hospital	Norfolk	yes	yes	22	15	yes	200	No	4	Ap.	12	July	$50	Op.
U. S. Marine Hospital	Norfolk	89	94	..	..	69	252	(109)	8	Both	12	July	(b)	None
Norfolk Naval Hospital	Portsmouth	425	492	..	..	10	927	(110)	6	Both	12	July	(b)	None
Johnston-Willis Hospital	Richmond	yes	yes	yes	yes	yes	127	No	4	Ap.	12	July	$50	Req.
Medical College of Virginia, Hospital Division [1] (Memorial, Dooley, St. Philip and Crippled Children's Hospitals)	Richmond	yes	yes	yes	yes	yes	456	(111)	20	Both	12	July	$10	Req.
Stuart Circle Hospital	Richmond	yes	yes	18	yes	yes	108	No	3	Ap.	12	July	$50	None
Jefferson Hospital	Roanoke	yes	yes	yes	yes	yes	119	No	3	Ap.	12	July	$50	Req.
University of Virginia Hospital [1]	University	yes	yes	yes	yes	yes	340	(112)	12	Ap.	12	July	No	Req.
WASHINGTON														
U. S. Naval Hospital	Bremerton	102	104	..	..	211	417	(113)	5	Both	12	July	(b)	None
Columbus Hospital	Seattle	101	62	37	yes	36	236	No	3	Ap.	12	July	$50	None
Harborview Hospital	Seattle	25	195	34	32	167	453	(114)	16	Ap.	18	Jan. & July	$30	Req.
Providence Hospital	Seattle	156	96	72	31	57	412	No	5	Ap.	12	July	$50	None
Seattle General Hospital	Seattle	yes	yes	yes	yes	yes	135	(115)	4	Ap.	12	July	$30	Req.
Swedish Hospital	Seattle	yes	yes	48	4	yes	260	(116)	8	Ap.	12	July & Oct.	$50	Op.
Virginia Mason Hospital	Seattle	60	60	13	6	41	180	No	4	Ap.	12	(1-q)	$50	Req.
Deaconess Hospital [1]	Spokane	yes	yes	yes	yes	yes	225	(117)	2	Ap.	12	July	$50	Req.
St. Luke's Hospital	Spokane	59	36	24	17	39	175	(118)	3	Ap.	12	July	$50	None
Northern Pacific Beneficial Association Hosp.	Tacoma	yes	yes	yes	yes	yes	120	(119)	2	Ap.	12	July	$25	Req.
Pierce County Hospital	Tacoma	42	119	17	10	28	216	No	5	Ap.	12	July	$50	Req.
St. Joseph's Hospital	Tacoma	100	72	50	15	113	350	No	2	Ap.	12	July	$30 (s)	Req.
Tacoma General Hospital	Tacoma	91	33	35	14	36	209	No	4	Ap.	12	July	$50	None
WEST VIRGINIA														
Charleston General Hospital	Charleston	yes	yes	yes	yes	yes	165	(120)	5	Ap.	12	July	$25	Req.
Chesapeake and Ohio Railway Hospital	Huntington	yes	yes	yes	yes	yes	134	(121)	3	Ap.	12	July	$50	Req.
Ohio Valley General Hospital	Wheeling	yes	yes	30	35	39	275	No	6	Ap.	12	July	$40	Req.
Wheeling Hospital	Wheeling	185	50	25	40	25	325	No	5	Ap.	12	July	$50	Req.
WISCONSIN														
St. Elizabeth Hospital	Appleton	yes	yes	yes	yes	yes	250	No	2	Ap.	12	July	$50	None
St. Joseph's Hospital	Ashland	60	43	25	18	4	150	No	1	Ap.	12	July	$20 (q)	None
Luther Hospital	Eau Claire	55	45	20	10	45	175	No	2	Ap.	12	July	$25 (h)	None
St. Agnes Hospital	Fond du Lac	88	57	34	33	38	250	No	3	Ap.	12	July	$25	None
Mercy Hospital	Janesville	75	30	30	15	..	150	No	1	Ap.	12	July	$25	None
La Crosse Lutheran Hospital	La Crosse	yes	yes	yes	yes	yes	149	No	2	Ap.	12	July	No	Req.
St. Francis Hospital	La Crosse	68	68	30	33	116	315	No	4	Ap.	12	July	$25	Op.
Madison General Hospital	Madison	98	36	20	10	21	185	No	4	Ap.	12	July	$50	None
Methodist Hospital	Madison	yes	yes	yes	yes	yes	125	No	4	Ap.	12	July	$50	Req.
St. Mary's Hospital	Madison	yes	yes	yes	yes	yes	175	No	4	Ap.	12	July	$500 yr.	Req.
State of Wisconsin General Hospital [1]	Madison	250	250	30	50	..	580	No	14	Ap.	12	July	No	Req.
St. Joseph's Hospital	Marshfield	54	56	15	20	25	170	No	3	Ap.	12	July	$45	None
Columbia Hospital	Milwaukee	yes	yes	yes	..	yes	185	(122)	5	Ap.	24	July	$25	Req.
Evangelical Deaconess Hospital [1]	Milwaukee	yes	yes	yes	..	yes	180	(123)	4	Ap.	12	July	$25 (h)	None
Milwaukee General Hospital [1]	Milwaukee	49	70	30	18	33	200	No	3	Ap.	12	July	$25	Req.
Milwaukee Hospital "The Passavant"	Milwaukee	yes	yes	33	19	36	251	No	6	Ap.	12	July	$25	Req.
Misericordia Hospital	Milwaukee	yes	yes	40	yes	yes	150	No	3	Ap.	12	June	$25	None
Mount Sinai Hospital	Milwaukee	yes	yes	31	yes	yes	170	No	5	Ap.	12	July	$25	Req.
St. Joseph's Hospital [1]	Milwaukee	73	36	68	40	178	395	No	6	Ap.	12	July	$25	None
St. Luke's Hospital	Milwaukee	yes	yes	24	6	..	119	No	2	Ap.	12	July	$25	None
St. Mary's Hospital	Milwaukee	136	40	32	18	40	266	No	5	Ap.	12	June & July	$25	None
Milwaukee County General Hospital [1]	Wauwatosa	yes	yes	yes	yes	yes	1,050	No	38	Ex.	12	Jan. & July	$25	Req.
CANAL ZONE														
Gorgas Hospital	Ancon	300	400	25	80	85	890	(124)	9	Ap.	12	June & July	$80	Req.
HAWAII														
Queen's Hospital	Honolulu	yes	yes	14	22	yes	300	(125)	7	Ap.	12	(1-b)	$50-$100	Req.
PHILIPPINE ISLANDS														
Philippine General Hospital [1]	Manila	170	142	48	54	234	648	(126)	31	Ap. (1-t)	12	March	No	Req.
FOREIGN														
Peiping Union Medical College Hospital [1]	Peiping, China	89	100	44	20	93	346	No	31	Ap.	12	July	$250 yr.	Req.
Shanghai Sanitarium and Hospital [1]	Shanghai, China	yes	yes	yes	yes	yes	220	No	6	Ap.	12	July	...	Req.

Numerical and other references will be found on page 755.

NOTES

Information regarding acceptable internships in Canadian Hospitals may be obtained from the Canadian Medical Association, 184 College Street, Toronto, G Harvey Agnew, M D, Secretary, Department of Hospital Service

1 Women interns admitted
2 Women interns only
(a) $50 per month, bonus of $60 No maintenance
(b) Salary established by Government Pay Tables according to rank and service
(c) In lieu of maintenance
(d) Bonus of $110
(e) Bonus of $10 for satisfactory records
(f) Bonus of $150
(g) Bonus of $300
(h) Bonus of $100
(i) $10 a month for first 6 months $20 a month for next 6 months, $30 a month for last 6 months, bonus of $50
(j) Bonus of $120
(k) Bonus of $180
(m) Bonus of $50
(n) Bonus of $125
(o) Bonus of $60
(p) Bonus of $40
(q) Bonus of $200
(r) Bonus of $160
(s) Bonus of $240
(1 a) January, April, July, August and November
(1 b) Quarterly
(1 c) January, March, July, September and November
(1 d) March, July and November
(1 e) January, July and October
(1 f) April, July and October
(1 g) July, August and September
(1 h) January, May and September
(1 i) Every two months
(1 j) Every six weeks
(1 k) January, March, May, July, September and November
(1 m) February, June and October
(1 n) January, June and September
(1 o) June, October and December
(1 p) June, July and August
(1 q) July, September and October
(1 r) April, June and August
(1 s) May July and October
(1 t) All internships reserved for the fifth year students of the College of Medicine, University of the Philippines
(1 u) January, April and July

Affiliation as Referred to in Column Headed "Affiliated—For What Service"

3 Patton State Hospital, Patton, psychiatry
4 Los Angeles Receiving Hospital, emergency service
5 All Nations Clinic, Los Angeles, outpatient and general service
6 Children's Hospital, Los Angeles, pediatrics
7 Glendale Sanitarium and Hospital, Glendale, medicine and surgery
8 Mt Zion Hospital and St Francis Hospital, San Francisco, obstetrics and gynecology
9 Internship in these hospitals includes service in Highland Hospital, Oakland, and Fairmont Hospital, San Leandro
10 Woman's Hospital, Pasadena, obstetrics
11 Mercy Hospital, San Diego, obstetrics
12 Napa State Hospital, Imola, University of California and Stanford University Hospitals Emergency Hospital and Laguna Honda Home Infirmary, San Francisco
13 St Francis Hospital and University of California Hospital San Francisco, obstetrics and pediatrics
14 San Francisco Hospital, gynecology and obstetrics
15 Santa Barbara General Hospital, general, tuberculosis, neuropsychiatry and contagious diseases
16 Santa Barbara Cottage Hospital, tuberculosis, neuropsychiatry and contagious diseases
17 St Joseph's Hospital and Children's Hospital, Denver, pediatrics and obstetrics
18 Children's Hospital, Denver, pediatrics
19 City Dispensary, Bridgeport, ambulance service
20 Hartford Isolation Hospital
21 Children's Hospital and Columbia Hospital for Women and Lying In Asylum, Washington, pediatrics and obstetrics
22 Columbia Hospital for Women and Lying In Asylum, Washington, obstetrics
23 Children's Hospital, Washington, pediatrics
24 Misericordia Hospital and Infant's Home, Chicago, obstetrics
25 Grant Hospital, Chicago, obstetrics and gynecology
26 Internship in the University of Chicago Clinics includes service in Albert Merritt Billings Hospital, Bobs Roberts Memorial Hospital, Nancy Adele McElwee Memorial and Gertrude Dunn Hicks Memorial Hospital and Max Epstein Clinic also Chicago Lying In Hospital
27 Chicago Lying In Hospital and Children's Memorial Hospital, obstetrics and pediatrics
28 The Indiana University Hospitals include the Robert W Long Hospital, the James Whitcomb Riley Hospital for Children, and the William H Coleman Hospital for Women
29 Broadlawns, Polk County Public Hospitals, Des Moines, tuberculosis and contagious diseases
30 Watkins Memorial Hospital, Lawrence
31 Winfield Sanatorium, Winfield, tuberculosis
32 Salvation Army Home and Hospital, Wichita
33 Julius Marks Sanatorium, Lexington, tuberculosis
34 Children's Free Hospital, Louisville
35 Charity Hospital and Touro Infirmary, New Orleans, obstetrics, gynecology and pediatrics
36 Johns Hopkins Hospital, B
37 University of Maryland Hos Baltimore, obstetrics, pediatrics and
38 Evangeline Booth Maternity
39 Boston City Hospital, obstetrics
40 Wesson Maternity Hospital, Shriners Hospital for Crippled Children, City Hospital, and Health Department Hospital, Springfield
41 Mercywood Sanitarium, Ann Arbor, psychiatry
42 Michigan Mutual Hospital, Detroit, industrial surgery
43 Herman Kiefer Hospital, Detroit
44 Herman Kiefer Hospital and Children's Hospital, contagious diseases, obstetrics and pediatrics
45 St Joseph's Retreat, Dearborn, psychiatry
46 Children's Hospital, Detroit, pediatrics
47 Sunshine Sanatorium, Grand Rapids, tuberculosis
48 Michigan State Prison Hospital Jackson, tuberculosis and contagious diseases
49 Muskegon County Tuberculosis Sanatorium, Muskegon
50 Gillette State Hospital for Crippled Children, St Paul
51 Parkview Sanatorium, Minneapolis
52 Glen Lake Sanatorium, Oak Terrace, tuberculosis
53 Shriners Hospital for Crippled Children, Minneapolis
54 St Vincent's Maternity Hospital, Kansas City, Mo
55 St Anthony's Hospital, St Louis, obstetrics, gynecology and pediatrics
56 St Louis Children's Hospital and Shriners Hospital for Crippled Children
57 St Vincent's Sanitarium and St Ann's Lying In Hospital, St Louis, psychiatry and pediatrics
58 Robert Koch Hospital, City Isolation Hospital, City Sanitarium and City Infirmary, St Louis
59 St Mary's Group of Hospitals includes St Mary's Hospital, St Mary's Infirmary and Mt St Rose Sanatorium
60 Municipal Hospital, Atlantic City, contagious diseases Atlantic County Hospital for Tuberculous Diseases and Atlantic County Hospital for Mental Diseases, Northfield
61 St Elizabeth Hospital, Elizabeth obstetrics
62 Includes service in Margaret Hague Maternity Hospital, Jersey City
63 Passaic Municipal Hospital, contagious diseases
64 Anthony N Brady Maternity Hospital Albany
65 Kingston Avenue Hospital Brooklyn contagious diseases
66 Charles V Chapin Hospital, Providence, contagious diseases and pediatrics
67 House of St Giles the Cripple, Brooklyn
68 Cumberland Hospital, Brooklyn, obstetrics
69 Methodist Episcopal Hospital, Brooklyn, obstetrics, gynecology and pediatrics
70 Jewish Maternity Hospital, New York City
71 Includes service in Sloane Hospital for Women, New York City
72 John E Berwind Clinic, New York, obstetrics
73 Includes service in Rochester Municipal Hospital
74 Schenectady City Hospital, contagious diseases
75 St Vincent's Hospital, Staten Island, obstetrics, gynecology and pediatrics
76 Syracuse Memorial Hospital, obstetrics
77 Forsyth County Tuberculosis Sanatorium, Winston Salem
78 Children's Hospital, Akron, pediatrics and orthopedics
79 Children's Hospital, Cincinnati, pediatrics
80 Christian R Holmes Hospital, Hamilton County Tuberculosis Sanatorium, and Hamilton County Chronic Disease Hospital, Cincinnati
81 St Mary's Hospital, Quincy, Ill, obstetrics
82 St Ann's Maternity Hospital, Cleveland
83 City Hospital Cleveland, contagious diseases and psychiatry
84 University Hospitals of Cleveland include the Lakeside Hospital, Maternity Hospital, Babies and Childrens Hospital, Cleveland and the Rainbow Hospital for Crippled and Convalescent Children, South Euclid
85 Children's Hospital, Columbus, pediatrics
86 Children's Hospital and Starling Loving University Hospital, Columbus, pediatrics and obstetrics
87 Lima State Hospital and District Tuberculosis Hospital, Lima
88 Mahoning Tuberculosis Sanatorium, Youngstown
89 Shriners Hospital for Crippled Children, Portland
90 Doernbecher Memorial Hospital, Portland, pediatrics
91 Portland Medical Hospital
92 Allentown State Hospital, Allentown psychiatry
93 Kensington Hospital for Women, Philadelphia, obstetrics
94 Philadelphia Hospital for Contagious Diseases
95 Children's Hospital, Philadelphia, pediatrics
96 St Vincent's Hospital for Women and Children, Philadelphia, obstetrics
97 Shriners Hospital for Crippled Children Philadelphia, orthopedics and pediatrics
98 Misericordia Hospital, Philadelphia, obstetrics
99 Municipal Hospital for Contagious Diseases, Pittsburgh
100 Tuberculosis League Hospital, Pittsburgh
101 Elizabeth Steel Magee Hospital, Children's Hospital, and Eye and Ear Hospital, Pittsburgh
102 Manhattan Maternity and Dispensary, New York City
103 Providence Lying In Hospital, Providence
104 Children's Hospital and Pine Breeze Sanitarium, Chattanooga, pediatrics and tuberculosis
105 Willard Parker Hospital, New York City, contagious diseases
106 Bradford Memorial Hospital for Babies and Woodlawn Sanatorium, Dallas, pediatrics and tuberculosis
107 John Sealy Hospital Galveston, obstetrics and gynecology
108 Gulf, Colorado and Santa Fe Hospital and the Scott and White Hospital affiliated furnish one internship
109 Norfolk Protestant Hospital, Florence Crittenden Home and King's Daughters Clinic, obstetrics and pediatrics
110 King's Daughters Hospital, Portsmouth, obstetrics
111 City Home, Richmond, tuberculosis
112 Blue Ridge Sanatorium, Charlottesville, tuberculosis
113 Harborview Hospital, Seattle, obstetrics and pediatrics
114 Includes service in the Morningside Sanitarium and Georgetown Hospital, Seattle
115 Children's Orthopedic Hospital, Seattle, pediatrics and orthopedics
116 Children's Orthopedic Hospital, Seattle, pediatrics and orthopedics, and the Firland Sanatorium, Richmond Highlands, tuberculosis and contagious diseases
117 Edgecliff Sanatorium, Spokane, tuberculosis
118 Edgecliff Sanatorium and Rivercrest Hospital, Spokane, tuberculosis and contagious diseases, also Eastern State Hospital, Medical Lake, psychiatry
119 Pierce County Hospital, Tacoma, obstetrics
120 Hill Crest Sanatorium, Charleston, tuberculosis
121 Salvation Army Hospital, Huntington
122 Milwaukee Children's Hospital, pediatrics, and South View Isolation Hospital, contagious diseases
123 Milwaukee Children's Hospital, pediatrics
124 Corozal Hospital, Corozal, C Z, psychiatry, and Colon Hospital, Colon, R P, general
125 Kauikeolani Children's Hospital, Honolulu, pediatrics
126 San Lazaro Hospital, Manila, contagious diseases

DESCRIPTION OF MEDICAL COLLEGES

ALABAMA

University

University of Alabama School of Medicine University — Organized in 1859 at Mobile as the Medical College of Alabama Classes graduated in 1861 and subsequent years excepting 1862 to 1868 inclusive Reorganized in 1897 as the medical department of the University of Alabama Present title assumed in 1907, when all property was transferred to the University of Alabama In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa Coeducational since 1920 Entrance requirements are seventy semester hours of collegiate work The course of study covers two years of thirty six weeks each The faculty includes 13 professors and 8 instructors, assistants, etc, a total of 21 The tuition fees are $221 50 the first year and $241 50 the second year Total registration for 1931 1932 was 107 The sixty seventh session begins Sept 7, 1932, and ends May 24, 1933 The Dean is Stuart Graves, M D

ARKANSAS

Little Rock

University of Arkansas School of Medicine 300 West Markham Street —Organized in 1879 as the Medical Department of Arkansas Industrial University Present title in 1899 In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas The first class was graduated in 1880 Clinical teaching was suspended in 1918 but resumed in 1923 Coeducational since organization The faculty consists of 28 professors and 59 lecturers and assistants, total 87 The curriculum covers four years of nine months each Entrance requirements are two years of collegiate work in addition to a four year high school course The fees for the four years respectively, for residents of Arkansas are $165, $160, $155 and $155 nonresidents are charged $100 additional each year The total registration for 1931 1932 was 198, graduates 46 The fifty fourth session begins Sept 21, 1932, and ends June 5, 1933 The Dean is Frank Vinsonhaler M D

CALIFORNIA

Berkeley-San Francisco

University of California Medical School University Campus Berkeley Third and Parnassus avenues San Francisco —Organized in 1862 as the Toland Medical College The first class graduated in 1864 In 1872 it became the Medical Department of the University of California In 1909, by legislative enactment, the College of Medicine of the University of Southern California at Los Angeles became a clinical department but was changed to a graduate school in 1914 In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica, and therapeutics were provided Coeducational since organization Three years of collegiate work is required for admission The work of the first year is given at Berkeley and that of the last three years at San Francisco The faculty is composed of 130 professors and 235 associates and assistants a total of 365 The course covers four years of eight months each and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school Fees for the four years respectively, for residents of California are $290 $225, $225 and $225 nonresidents are charged $300 additional each year Total registration for 1931 1932 was 231 graduates, 55 The sixtieth session begins Aug 15, 1932, and ends May 13, 1933 The Dean is Langley Porter, M D , San Francisco

Loma Linda-Los Angeles

College of Medical Evangelists —Organized in 1909 The first class graduated in 1914 The laboratory departments are at Loma Linda, the clinical departments at Los Angeles Coeducational since organization The faculty is composed of 54 professors and 197 associates, assistants and instructors a total of 251 The course covers a period of five years, including one year of internship During the first and second years the students are in school twelve months each year This is accomplished by means of the cooperative plan the student spending alternate months in an approved hospital in practical lines of medical training Sixty four semester hours of college work is required for admission The total fees for the four years respectively, are $385, $375, $480 and $440 The total registration for 1931 1932 was 392, graduates 82 The twenty fourth session begins July 1 1932, and ends June 25, 1933 The Dean of the Loma Linda Division is E H Risley, M D , and the Dean of the Los Angeles Division is Arthur E Coyne, M D

Los Angeles

University of Southern California School of Medicine, 3551 University Avenue —Organized in 1885 as the University of Southern California College of Medicine First class graduated in 1888 In 1908 it became the Medical Department of the University of California in Los Angeles In 1909 the College of Physicians and Surgeons, established in 1904 became the Medical Department of the University of Southern California Its activities were suspended in 1920, reorganized in May, 1928 under present title The faculty consists of 116 professors and 64 instructors assistants and others, a total of 180 During the session of 1931 1932 three years of the medical course was offered The fourth year of the course will be begun for the first time in September, 1932 A fifth intern year is required Three years of collegiate work is required for admission Coeducational since organization Annual fees amount to $430 The total registration for 1931 1932 was 128 The next session begins Sept 12, 1932, and ends June 3, 1933 The Dean is Paul S McKibben, Ph D

San Francisco

Stanford University School of Medicine, 2398 Sacramento Street San [illegible] 1908 when, by an agreement, the interests of [illegible] ere taken over The first class was graduate [illegible] since organization The faculty consists of 96 professors and 127 lecturers, assistants and others, a total of 223 Three years of collegiate work is required for admission The course covers four years of eight and one half months each, plus a fifth year of practice or intern work The fees for the four years, respectively, are $387, $369, $360 and $360 The total registration for 1931 1932 was 195 graduates 43 The twenty third session begins Oct 1, 1932, and ends June 19, 1933 The Dean is Henry George Mehrtens, M D

COLORADO

Denver

University of Colorado School of Medicine, 4200 East Ninth Avenue —Organized in 1883 Classes were graduated in 1885 and in all subsequent years except 1898 and 1899 Denver and Gross College of Medicine was merged, Jan 1, 1911 Coeducational since organization The faculty is composed of 57 professors and 130 lecturers, instructors and assistants, a total of 187 The course covers four years of nine months each The college also is urging a year's internship in a hospital The entrance requirements are three years of college work The fees for residents of Colorado, for each of the four years are, respectively, $211, $231, $181 and $191 Nonresidents pay $132 more each year The total registration for 1931 1932 was 208, graduates, 53 The fifty first session begins Sept 26, 1932, and ends June 12, 1933 The Dean is Maurice H Rees, M D

CONNECTICUT

New Haven

Yale University School of Medicine 333 Cedar Street —Chartered in 1810 as the Medical Institution of Yale College Organized in 1812, instruction began in 1813, first class graduated in 1814 A new charter in 1879 changed the name to the Medical Department of Yale College In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter In 1887, Yale College became Yale University Coeducational since 1916 The faculty consists of 102 professors and 152 lecturers and assistants a total of 254 The requirements for admission are three years of collegiate work plus completion of courses in physics, inorganic chemistry, qualitative analysis general biology, organic chemistry and physical chemistry or laboratory physics all equivalent to the courses in these subjects in Yale University The student also must have two years of French or German The course covers four years of nine months each The fees for the four years respectively, are $505, $500, $500 and $520 The total registration for 1931 1932 was 195, graduates, 44 The one hundred and twentieth session begins Sept 29, 1932, and ends June 14, 1933 The Dean is Milton C Winternitz, M D

DISTRICT OF COLUMBIA

Washington

Georgetown University School of Medicine 3900 Reservoir Road, N W —Organized 1851 First class graduated in 1852 The faculty is composed of 102 professors 108 instructors and assistants, total, 210 Three years of collegiate work is required for entrance The course of study covers four terms of eight and one half months each The present fees for each of the four sessions, respectively, are $445, $445, $360 and $360 The total registration for 1931 1932 was 598 graduates, 134 The eighty second session begins Sept 16, 1932, and ends June 12, 1933 The Dean is William Gerry Morgan, M D

George Washington University School of Medicine 1335 H Street, N W — Organized in 1825 as the Medical Department of Columbian College Also authorized to use the name National Medical College Classes were graduated in 1826 and in all subsequent years except 1834 to 1838, and 1861 to 1865, inclusive The original title was changed to Medical Department of Columbian University in 1873 In 1903 it absorbed the National University Medical Department In 1904, by an act of Congress the title of George Washington University was granted to the institution Coeducational since 1884 The faculty is composed of 53 professors and 111 instructors, demonstrators and assistants a total of 164 Two years of collegiate work are required for admission The course covers four years of thirty two weeks each The fees for the four years respectively, are $491, $491, $491 and $476 The total registration for 1931 1932 was 283, graduates, 57 The one hundred and eighth session begins Sept 21, 1932, and ends June 3, 1933 The Dean is Earl B McKinley, M D

Howard University College of Medicine, Fifth and W streets N W —Chartered in 1867 Organized in 1869 The first class graduated in 1871 Coeducational since 1869 Negro students compose a majority of those in attendance The faculty comprises 33 professors and 70 lecturers and assistants, 103 in all The admission requirements are at least two years of collegiate work, including physics, chemistry botany and zoology, English and French or German The course covers four years of thirty three weeks each The fees for each of the four sessions, respectively, are $274 50, $274 50, $264 50 and $264 50 Registration for 1931 1932 was 218, graduates, 55 The sixty fifth session begins Oct 3, 1932, and ends June 9, 1933 The Dean is Numa P G Adams, M D

GEORGIA

Atlanta

Emory University School of Medicine 50 Armstrong Street and Druid Hills—Organized in 1854 as the Atlanta School of Medicine Classes graduated 1855 to 1861, when it suspended Reorganized in 1865 A class graduated in 1865 and each subsequent year except 1874 In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College Became the Medical Department of Emory University in 1915 assumed present title in 1917 Two years of college work is required for admission The faculty consists of 18 professors and 168 associates and assistants, a total of 186 The course of study is four years of thirty two weeks each The fees for each of the four years are $300 Total registration for 1931-1932 was 210, graduates, 53 The next session begins Sept 28, 1932, and ends June 12, 1933 The Dean is Russell H Oppenheimer, M D

Augusta

University of Georgia Medical Department University *Place*—Organized in 1828 as the Medical Academy of Georgia the name being changed to the Medical College of Georgia in 1829 Since 1873 it has been *known* as the *Medical Department* of the University of Georgia Property transferred to university in 1911 Classes were graduated in 1833 and all subsequent years except 1862 and 1863 Coeducation was begun in 1920 The faculty includes 35 professors and 30 assistants 65 in all Two years of college work is required for entrance The course is four years of thirty four weeks each The fees for each of the four years, respectively, are $105, $100, $100 and $100 for residents of Georgia and $300 each year for nonresidents The total registration for 1931 1932 was 154, graduates, 40 The one hundred and fourth session begins Sept 24, 1932, and ends June 5, 1933 The Dean is William Lorenzo Moss, M D

ILLINOIS

Chicago

Loyola University School of Medicine, 706 South Lincoln Street —Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery Eclecticism dropped and title of Bennett Medical College assumed in 1909 First class graduated in 1870, and a class graduated each subsequent year Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911 In 1910 it became by affiliation the School of Medicine of Loyola University, the university assumed full control in 1915 Took over by purchase the Chicago College of Medicine and Surgery in 1917 Coeducational Two years of college work is required for admission The course of study is five years, including an internship in a hospital The faculty is composed of 50 *professors and 212* assistants, *lecturers, instructors* and *others,* a *total* of 262 The fees for each year are $363 50 $377 50, $332 and $298, respectively The total enrolment for 1931 1932 was 500 graduates, 113 The next session begins Oct 3, 1932, and ends June 10, 1933 The Dean is Louis D. Moorhead, M D

Northwestern University Medical School, 303 East Chicago Avenue—Organized in 1859 as the Medical Department of Lind University First class graduated in 1860 In 1864 it became independent as the Chicago Medical College It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken Became an integral part of Northwestern University in 1905 Coeducational since 1926 The faculty comprises 119 professors and 283 lecturers and assistants, a total of 402 The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus three years of college work, including courses in physics, chemistry, biology and a modern language The course covers four years of eight months each and a fifth year spent in an approved hospital as an intern or in other practical work The total fees are $355 each year The total registration for 1931 1932 was 555, graduates, 116 The seventy fourth session begins Oct 4, 1932, and ends June 12, 1933 The Dean is Irving S Cutter, M D

University of Chicago, Rush Medical College, 1758 West Harrison Street—Chartered in 1837, held first class in 1843 First class graduated in 1844 In 1887 the college became the medical department of Lake Forest University, retaining however, its self government This *relation* was dissolved in *April, 1898,* and in the same *month affiliation* with the University of Chicago was established Since that time the work of the first two years has been given on the University Quadrangles In May, 1924, by a new contract, the University of Chicago took over the work of Rush Medical College as a department of the university Since 1914 the course has included a fifth year consisting of a hospital internship or of a fellowship in one of the departments Coeducational since 1898 Classes are limited to 140 students No application for admission is accepted after June 1 The school operates under the 'quarter system" in which the year is divided into four quarters of twelve weeks each, the completion of the work of three of these quarters gives credit for a college year The faculty is composed of 126 professors, 148 associates, instructors and others, a total of 274 The fee for the third year is $380, and for the fourth $400 Total registration for 1931 1932 was 307, graduates, 154 The eighty eighth session begins Oct *3, 1932, and ends June 13, 1933* The school *is in session* all year except the month of September The Dean is Ernest E Irons, M D

University of Chicago, School of Medicine of the Division of the Biological Sciences, Fifty Eighth Street and Ellis Avenue—*Organized in 1924 as a part of the Ogden Graduate School of Science* The work of the first two years of the medical course has been given on the Quadrangles since 1899, and that of the clinical years was added in 1924 with the organization of this medical school All the work leading to the degree of M D may now be done on the Quadrangles A fifth year, spent in successful internship in an approved hospital or in advanced work in some branch of medical science, is required for graduation Coeducational The faculty is composed of 95 professors, 135 associates, instructors and others a total of 230 The requirements for admission are three years of college work including courses in college chemistry, physics and biology, and a reading knowledge of German or French The school operates under the quarter system," in which the year is divided into four quarters of twelve weeks each, the completion of the work of three of these quarters gives credit for a college year Students are admitted at the beginning of either autumn or spring quarters Applications for admission in the autumn should be made in April for admission in the spring, in January The tuition fees for each of the four years are $375 Total registration for 1931 1932 was *289* graduates, 19 The next session begins Oct 3, 1932, and ends June 14, 1933 The Dean of Medical Students is B C H Harvey, M D

University of Illinois College of Medicine 1853 West Polk Street—Organized in 1882 as the College of Physicians and Surgeons *The first class* graduated in *1883* It became the Medical Department of *the University of Illinois* by *affiliation* in *1897 Relationship* with the university was canceled in June 1912, and was restored in March, 1913, when the present title was assumed Coeducational since 1898 Two years of collegiate work is required for admission The curriculum covers four years of thirty two weeks each, and a year of internship in an approved hospital The faculty is composed of 92 professors and 209 assistants and instructors, a total of 301 The tuition is $200 a year for students who are residents of Illinois $300 a year for non resident students The total registration for 1931 1932 was 589, graduates 95 The fifty first session begins Oct 3, 1932, and ends June 9, 1933 The Dean is David John Davis, M D

INDIANA

Bloomington-Indianapolis

Indiana University School of Medicine—Organized in 1903 but did *not give all the work of the first two years of the medical course* until 1905 In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it The first class was graduated in 1908 Coeducational since organization The faculty consists of 231 professors, lecturers, associates and assistants Two years of *collegiate* work *is required for admission The* work *of the* first year is done at Bloomington The work of the other three years is given at Indianapolis The fees for each of the four years, respectively, are $187, $186, $182 and $177 for residents of Indiana, and $75 additional for first year, and $175 additional for last three years, for nonresidents A fifth optional intern year leading to the "M D cum laude' has been added The total registration for 1931 1932 was 430, graduates 94 The next session begins Sept 13, 1932 and ends June 12, 1933 The Dean at Bloomington is B D Myers, M D, and the Dean at Indianapolis is W D *Gatch,* M D

IOWA

Iowa City

State University of Iowa College of Medicine, University Campus—Organized in 1869 First session began in 1870 First class graduated in 1871 Absorbed Drake University College of Medicine in 1913 Coeducational since 1870 The faculty is made up of 46 professors, 63 lecturers, demonstrators and assistants, a total of 109 Two years of college work, including courses in physics, chemistry, biology, German and English, is required for admission The course of study covers four years of thirty four weeks each The tuition fee is $192 each year for residents of Iowa and $456 for nonresidents Total registration for 1931 1932 was 379, graduates 99 The sixty third session begins Sept 26, 1932, and ends June 5, 1933 The Dean is Henry Spencer Houghton, M D

KANSAS

Lawrence-Kansas City

University of Kansas School of Medicine—Organized in 1880 It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico Chirurgical College, founded in 1897 Absorbed Kansas Medical *College* in 1913 *First class graduated* in *1906 The clinical* courses are given at Kansas City Coeducational since 1880 The faculty includes 23 professors and 137 instructors, assistants and others, a total of 160 The requirement for admission is two years of collegiate work The course covers four years of nine months each The total fees for residents of the state for each of the four years are, respectively, $162, $154, $155 and $159 For nonresidents the fees are $50 additional each year The total registration for 1931-1932 was 254, graduates, 53 The fifty third session begins Sept 22, 1932, and ends June 12, *1933* The *Dean* is *H R* Wahl, M D, Kansas City

KENTUCKY

Louisville

University of Louisville School of Medicine, First and Chestnut streets.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908, the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of college work is required for admission. The faculty numbers 27 professors and 116 assistants, instructors and others, a total of 143. Students limited to 90 freshmen, 90 juniors; number of sophomores and seniors contingent on number promoted. Course covers four years of thirty-two weeks each, exclusive of vacations and examinations. Fees for four years are, respectively, $365, $365, $370 and $380. Total registration for 1931-1932 was 340; graduates, 88. Next session begins Sept. 15, 1932, and ends June 3, 1933. The Dean is John Walker Moore, M D.

LOUISIANA

New Orleans

Tulane University of Louisiana School of Medicine, 1430 Tulane Avenue.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847, and became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. The faculty comprises 30 professors and 127 associate and assistant professors, instructors and assistants, a total of 157. The course covers four years of thirty-two weeks each. Two years of collegiate work is required for admission. Total fees for each of the four years, respectively, are $350, $340, $325 and $355. The total registration for 1931-1932 was 483; graduates, 108. The ninety-ninth session begins Sept. 26, 1932, and ends June 7, 1933. The Dean is Charles Cassedy Bass, M.D.

MARYLAND

Baltimore

Johns Hopkins University School of Medicine, Washington and Monument streets.—Organized in 1887. Offered preliminary course only until 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 71 professors and 313 instructors, assistants and others, a total of 384. The requirements for admission demand that the applicant possess a collegiate degree and have a knowledge of French and German (two years each of college instruction), physics and biology, such as may be obtained from a years' course, and a two years' course in chemistry. The course extends over four years of eight and one-half months each. The total fees for each year are, respectively, $611, $610, $610 and $610. Total registration for 1931-1932 was 282; graduates, 67. The fortieth session begins Oct. 4, 1932, and ends June 13, 1933. The Dean is Alan M. Chesney, M.D.

University of Maryland School of Medicine and College of Physicians and Surgeons, Lombard and Greene streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810 In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 92 professors and 141 instructors and assistants, a total of 233. Two years of college work is required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are $385, $375, $375 and $390 for residents of the state; for nonresidents the fees are $150 additional each year. Total registration for 1931-1932 was 420; graduates, 101. The one hundred and twenty-fifth session begins Sept. 26, 1932, and ends June 3, 1933. The Dean is J. M. H. Rowland, M.D.

MASSACHUSETTS

Boston

Boston University School of Medicine, 80 East Concord Street.—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Three years of collegiate work is required for admission. The faculty includes 19 professors, 153 associates and others, a total of 172. The course covers four years: first three years, thirty-two weeks; fourth year, thirty-six weeks. Total fees for each of the four years, respectively, are $421.50, $421.50, $396.50 and $406.50. Total registration for 1931-1932 was 234; graduates, 52. The sixtieth session begins Sept. 22, 1932, and ends June 12, 1933. The Dean is Alexander S. Begg, M.D.

Harvard University Medical School, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 114 professors and 345 instructors and assistants, a total of 459. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology and general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fee for each of the four years is $400 plus $5 the first year for matriculation. The total registration for 1931-1932 was 517; graduates, 136. The one hundred and fiftieth session begins Sept. 26, 1932, and ends June 22, 1933. The Dean is David L. Edsall, M.D.

Tufts College Medical School, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 66 professors and 219 assistants, lecturers and others, a total of 285. A minimum of two years of collegiate work is required for admission, but applicants with degrees are given preference. The course covers four years of eight months each. The total fees for each of the four years are $400, $400, $400 and $350. Total registration for 1931-1932 was 465; graduates, 117. The thirty-seventh session begins Sept. 28, 1932, and ends June 19, 1933. The Dean is A. Warren Stearns, M.D.

MICHIGAN

Ann Arbor

University of Michigan Medical School.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since organization. It has a faculty of 22 professors, 12 associate professors, 30 assistant professors, 70 instructors and lecturers; a total of 134. The entrance requirements are ninety semester hours, including courses in chemistry, physics and biology, with laboratory work, and two years of French or German, and one year of the other, one year of which must be of college grade. The curriculum covers four years of nine months each. The total fees for Michigan students are $200, $205, $205 and $202.50 for each of the four years, respectively, plus a matriculation fee of $10; for nonresidents, $100 a year additional. The matriculation fee for nonresidents is $25. The total registration for 1931-1932 was 514; graduates, 130. The eighty-third session begins Sept. 26, 1932, and ends June 19, 1933. The Secretary is Arthur C. Curtis, M.D.

Detroit

Detroit College of Medicine and Surgery, 1516 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Coeducational since 1917. Entrance requirement is an academic degree or 90 semester hours of academic credit with "combined degree" guaranteed by school of arts and sciences. The faculty consists of 33 professors, 101 lecturers and others, a total of 134. The course covers four years of nine months each and a fifth hospital intern year. The total fees for each of the first four years are, for Detroit residents, $275; for nonresidents who reside in Michigan, $375, and for nonresidents from outside the state, $400. For the fifth or intern year the resident student fee is $75, the nonresident fee is $110. The total registration for 1931-1932 was 315; graduates, 66. The forty-eighth session begins Sept. 29, 1932, and ends June 20, 1933. The Dean is W. H. MacCraken, M.D.

MINNESOTA

Minneapolis

University of Minnesota Medical School.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 176 professors and 155 instructors and assistants, a total of 331. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative and quantitative analysis and organic chemistry, eight credits of zoology, and a reading knowledge of scientific German. Students are required to secure a degree of B.S. or A.B. before receiving the degree of Bachelor of Medicine (M.B.) which is granted at the end of the four-year course. The M.D. degree is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Classes are graduated three times a year, in March, June and December (after 1932, no December class). Total fees are $243 for residents and $318 for nonresidents, each year of three quarters; incidental fee of $6 per quarter also. The total registration for 1931-1932 was 465; graduates, 129. The forty-fourth session begins Oct. 3, 1932, and ends June 17, 1933. The Dean is Elias P. Lyon, M.D.; Dean of Medical Sciences, Richard E. Scammon, Ph.D.

MISSISSIPPI

University

University of Mississippi School of Medicine.—Organized in 1903. Coeducational since organization. Gives only the first two years of the medical course. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. The session extends over eight and one-half months. Entrance requirement is two years of collegiate work. The faculty numbers 8 professors and 7 instructors, assistants and others, a total of 15. The total fees each year for residents are $200.75; for nonresidents, $50 additional per year The total registration for 1931 1932 was 53 The thirtieth session begins Sept 21, 1932, and ends June 4, 1933 The Dean is P L Mull, M D

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE—Organized at St Louis in 1845, was discontinued in 1855 but was reorganized at Columbia in 1872 Teaching of the clinical years was suspended in 1909 and restored in 1931 Effective September, 1932, the third year and the proposed fourth year will be discontinued Coeducational since 1872 The faculty includes 13 professors and 10 assistant professors, lecturers and others, a total of 23 The entrance requirements are 90 semester hours of college work, including French or German, 8 hours, general zoology, 8 hours, physics, 8 hours, inorganic chemistry, 8 hours, organic chemistry, 5 hours, and general bacteriology, 3 hours Total fees for the first year are $170, for the second, $150 Nonresidents of the state pay $25 per term extra Total registration for 1931 1932 was 93 The next session begins Sept 12, 1932, and ends June 7, 1933 The Dean is Edgar Allen, Ph D

St Louis

ST LOUIS UNIVERSITY SCHOOL OF MEDICINE 1402 South Grand Boulevard—Organized in 1901 as the Marion Sims Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886 First class graduated in 1902 It became the Medical School of St Louis University in 1903 The faculty is composed of 77 professors and 227 instructors and assistants, a total of 304 The requirement for admission is a qualitative standard of two years of collegiate study in the customary subjects, but applicants presenting meritorious credit in excess of the two year minimum are accepted by preference The curriculum covers four years of thirty two weeks each The summer is optional and offers courses academically equivalent to those in the regular session The total fees for the four years, respectively, are $395, $390, $390 and $410 The total registration for 1931 1932 was 514, graduates, 104 The next session begins Sept 21, 1932, and ends June 1, 1933 The Dean is Alphonse M Schwitalla, S J, Ph D

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Kingshighway and Euclid Avenue—Organized in 1842 as the Medical Department of St Louis University The first class graduated in 1843 In 1855 it was chartered as an independent institution under the name of St Louis Medical College In 1891 it became the Medical Department of Washington University In 1899 it absorbed the Missouri Medical College Coeducational since 1918 The faculty comprises 52 professors and 243 lecturers, instructors and others, a total of 295 Four years of college work is required for admission, including courses in English, physics, chemistry and biology, and a reading knowledge of German or French The course is four years of eight months each The total fees for the four years are, respectively, $424, $419, $419 and $424 The total registration for 1931 1932 was 333, graduates, 88 The next session begins Sept 22, 1932, and ends June 6, 1933 The Dean is W McKim Marriott, M D

NEBRASKA

Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE, 306 North Fourteenth Street—Organized in 1892 as the John A Creighton Medical College The first class graduated in 1893 Present title in 1921 Coeducational since organization It has a faculty of 61 professors and 61 instructors, lecturers and assistants, a total of 122 Two years of collegiate work is required for admission The curriculum covers four years of eight months each The total fees each year for the four years are respectively, $393 50, $391, $348 50 and $346 Total registration for 1931 1932 was 288, graduates, 51 The fifty first session begins Sept 22, 1932, and ends June 1, 1933 The acting dean is John J McInerny, S J

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty Second Street and Dewey Avenue—Organized in 1881 as the Omaha Medical College The first class graduated in 1882 It became the Medical Department of Omaha University in 1891 In 1902 it affiliated with the University of Nebraska with the present title The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913, when the work of all four years was transferred to Omaha Coeducational since 1882 The faculty is composed of 70 professors and 58 lecturers and instructors, a total of 128 Sixty five semester hours of collegiate work is required for admission, including courses in physics chemistry and zoology The fees for each of the four years respectively, are $217, $212, $212 and $212 Total registration for 1931 1932 was 336, graduates, 78 The next session begins Sept 16, 1932, and ends June 5, 1933 The Dean is C W M Poynter, M D

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL—Organized as New Hampshire Medical Institute in 1797 The first class graduated in 1798 It is under the control of the trustees of Dartmouth College Clinical teaching was discontinued in 1914 The faculty consists of 16 professors and 11 instructors, a total of 27 Three years of collegiate work is required for admission The course covers nine calendar months in each year, or eight months of actual teaching Candidates for the A B degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department The fees for the first year are $410 and $400 for the second year The total registration for 1931 1932 was 40 The next session begins Sept 22, 1932, and ends June 20, 1933 The Dean is John P Bowler, M D

NEW YORK

Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue—Organized in 1838 The first class graduated in 1839 It became the Medical Department of Union University in 1873 In 1915, Union University assumed educational control Coeducational since 1915 The faculty is composed of 24 professors and 114 instructors, assistants and others, a total of 138 Two years of collegiate work, including college courses in physics, chemistry (including organic and analytic), biology English and a modern foreign language is required for admission The curriculum covers four years of eight months each The total fees for the four years, respectively, are $430, $405 $305 and $305 The total registration for 1931-1932 was 120 graduates 27 The one hundred and second session begins Sept 26, 1932, and ends June 12, 1933 The Dean is Thomas Ordway, M D

Brooklyn

LONG ISLAND COLLEGE OF MEDICINE 350 Henry Street—Organized in 1858 as the Long Island College Hospital The first class graduated in 1860 and the last class in 1930 Reorganized with a new charter in 1930 as the present institution The first class graduated in 1931 Coeducational It has a faculty of 113 professors and 111 assistants, instructors and others, a total of 224 Seventy two semester hours of collegiate work including college courses in physics chemistry and biology are required for admission The course covers four years of eight months each The total fees for each of the four years are, respectively, $545 $560 $530 and $560 Total registration for 1931 1932 was 433, graduates, 110 The second session begins Oct 3 1932, and ends June 10 1933 The Dean is Adam M Miller A M

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE 24 High Street—Organized in 1846 The first class graduated in 1847 It absorbed the Medical Department of Niagara University in 1898 Coeducational since organization The faculty is composed of 71 professors and 154 associates, assistants and others, a total of 225 Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German, is required for admission The course covers four years of eight months each The total fees for each of the four years are, respectively $527 $522, $517 and $527 Total registration for 1931 1932 was 273, graduates 59 The eighty seventh session begins Oct 3, 1932 and ends June 14, 1933 The Dean is Edward W Koch, M D

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS 630 West One Hundred and Sixty Eighth Street—The medical faculty of Columbia College, then known as King s College, was organized in 1767 Instruction was interrupted by the War of the Revolution The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807 In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College This merger became permanent by legislative enactment in 1891 Columbia College became Columbia University in 1896 The Medical School has been coeducational since 1917 The faculty is composed of 191 professors and 366 instructors, demonstrators and others a total of 557 Three years of collegiate work including courses in physics chemistry biology and English constitutes the minimum requirement for admission The work covers four years of eight months each The total fees for the four years, respectively, are $535, $520, $520 and $540 Total registration for 1931 1932 was 408, graduates 102 The one hundred and twenty fifth session begins Sept 28, 1932, and ends June 7, 1933 The Dean is Willard C Rappleye, M D

CORNELL UNIVERSITY MEDICAL COLLEGE York Avenue and Sixty-Ninth Street—Organized in 1898 The work of the first year may be taken either in Ithaca or in New York Coeducational since organization The faculty is composed of 112 professors and 175 assistants, lecturers, instructors and others, a total of 287 All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges that will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the bachelor degree on the completion of the first year's work The candidate must also have a knowledge of physics, chemistry, biology, English and a modern language The fees for each of the four years are respectively, $510, $500, $510 and $525 Total registration for 1931 1932 was 439 (including Ithaca students), graduates 60 The thirty fifth session begins Sept 26 1932, and ends June 8, 1933 The Director is G Canby Robinson, M D

NEW YORK HOMEOPATHIC COLLEGE AND FLOWER HOSPITAL 450 East Sixty Fourth Street—Organized in 1858 Incorporated in 1860 as the Homeopathic Medical College of the State of New York The title New York Homeopathic Medical College was assumed in 1869, present title in 1908 The first class graduated in 1861 Coeducational since 1919 Two years of collegiate work is required for admission The course covers four years of eight months each It has a faculty of 53 professors and associate professors, 18 assistant professors and 98 lecturers and assistants, a total of 169 The total fees for the four years are, respectively, $540, $530, $530 and $560 Total registration for 1931 1932 was 332, graduates, 78 The seventy third session begins Sept 19 1932, and ends June 6, 1933 The Dean is Claude A Burrett, M D

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE 338 East Twenty Sixth Street—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861 It is the Medical Department of New York University. First class graduated in 1899. Coeducational since 1919. The faculty is composed of 107 professors, associate, assistant, clinical and assistant clinical professors, and 206 lecturers, instructors and others, a total of 313. The course covers four years, the work for each of the first three years consists of nine months, and for the fourth year, eleven months Entrance requirements are that all candidates must be graduates of approved colleges or scientific schools, or seniors in good standing in approved colleges or scientific schools on condition that their faculty will permit them to substitute the first year in University and Bellevue Hospital Medical College for the fourth year of their college course and will confer on them the bachelor degree on the satisfactory completion of the year's work The fees for the four years, respectively, are $545, $533, $522 and $538 Total registration for 1931-1932 was 479, graduates, 113 The next session begins Sept 14, 1932, except for the fourth year students who reported for ward work on May 31, 1932, and ends June 7, 1933 The Dean is John Wyckoff, M D.

Rochester

University of Rochester School of Medicine, Elmwood Avenue and Crittenden Boulevard —Organized in 1925 as the Medical Department of the University of Rochester Coeducational since organization The faculty is composed of 55 professors, 134 lecturers, assistants, instructors and others, a total of 189 The work embraces a graded course of four years of nine months each Three years of collegiate work is required for admission The total fees for each year are $400 The total registration for 1931-1932 was 172, graduates, 34 The eighth session begins Sept 19, 1932, and ends June 19, 1933 The Dean is George Hoyt Whipple, M D

Syracuse

Syracuse University College of Medicine, 309-311 South McBride Street —Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University " Present title assumed in 1875, when a compulsory three year graded course was established The first class graduated in 1873 and a class graduated each subsequent year In 1889 the amalgamation with the university was made complete Course extended to four years in 1896 Coeducational since organization The faculty is composed of 37 professors and 155 associate and assistant professors, lecturers and instructors, a total of 192 Two years of a recognized college course is required for admission The course covers four years of thirty four weeks each The fee for each of the first three years is $500, for the fourth year, $510 The total enrolment for 1931-1932 was 193, graduates, 47 The sixty second session begins Sept 23, 1932, and ends June 5, 1933 The Dean is H G Weiskotten, M D.

NORTH CAROLINA

Chapel Hill

University of North Carolina School of Medicine —Organized in 1890 Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh The first class graduated in 1903 A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued Coeducational since 1914 Two years of collegiate work is required for admission The faculty is composed of 9 professors and 3 instructors, a total of 12 The fees for each year are $250 for residents, nonresidents, an additional fee of $100 The total registration for 1931-1932 was 75 The forty seventh session begins Sept. 23, 1932, and ends June 1, 1933 The Dean is I H Manning, M D

Durham

Duke University School of Medicine —Organized in 1925 The first class was admitted, Oct. 1, 1930 Coeducational The faculty is composed of 8 professors and 64 associate and assistant professors, lecturers, instructors and assistants, a total of 72 The entrance requirements are intelligence and character, plus seventy hours of college work, including two years each of chemistry and English, and one year each of biology, physics and mathematics The academic year consists of four quarters of eleven weeks each Students may either study four quarters each year, and if satisfactory will receive the M D certificate after three calendar years, or three quarters in each year, and if satisfactory be graduated after four calendar years The object of utilizing the summer quarters is to provide more time for longer postgraduate intern training. Duke University will grant the degree of Bachelor of Science to students who have completed satisfactorily seventy semester hours in Duke University or some other approved university, six quarters in the Duke University School of Medicine, creditable extra work and have written an acceptable thesis Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years The fees are $450 for each year of three quarters. Total registration for 1931-1932 was 147; graduates, 18 The next session begins Oct 3, 1932, and ends Sept 3, 1933 The Dean is Wilburt C. Davison, M D.

Wake Forest

Wake Forest College School of Medicine —This school was organized in 1902 The faculty, including the professors of chemistry, physics and biology, numbers 9 professors and 5 assistants, a total of 14. Sixty-two semester hours of collegiate work is required for admission Only the first two years of the medical course is offered. After the completion of freshman and sophomore college work and two years of medicine, a certificate will be given. The B S degree in medicine will be given only after completion of three years of college work and two years of medicine. Each annual course extends over nine months. The fees for the first year are $220 and $225 for the second year. The total registration for 1931-1932 was 59. The thirty first session begins Sept. 13, 1932, and ends June 1, 1933. The Dean is Thurman D. Kitchin, M.D.

NORTH DAKOTA

Grand Forks

University of North Dakota School of Medicine.—Organized in 1905 Offers only the first two years of the medical course. Coeducational since organization. Two years' work in a college of liberal arts is required for admission. The faculty consists of 5 professors and 8 instructors, a total of 13. The fees are $75 each year for resident students and $165 for nonresidents. The total registration for 1931-1932 was 55 The twenty-seventh session begins Sept. 20, 1932, and ends June 13, 1933. The Dean is H. E. French, M.D.

OHIO

Cincinnati

University of Cincinnati College of Medicine, Eden and Bethesda avenues —Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852) The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio Miami Medical College of the University of Cincinnati was taken Present title assumed in 1915. Coeducational since organization. Two years of college work are required for admission Commencing in 1934, candidates for admission to the freshman class must present three years of college preparation of not less than ninety hours (completed in a college of satisfactory standing). The faculty consists of 95 professors and 155 associates, assistants, etc, a total of 250 The course covers four years of eight months each A year's internship in an approved hospital is also required. The total fees for the four years are, respectively, $360, $360, $360 and $380, and if not legal citizens of Cincinnati, $50 additional. The total registration for 1931-1932 was 307; graduates, 61. The next session begins Sept. 19, 1932, and ends June 10, 1933. The Dean is Arthur C. Bachmeyer, M D

Cleveland

Western Reserve University School of Medicine, 2109 Adelbert Road —Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844 It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 66 professors and 159 lecturers, assistants and others, a total of 225. The curriculum covers three years of eight and one-half months each and one year of nine months. Graduation from an approved college or scientific school or equivalent, following completion of a course of at least three collegiate years, is required for admission. The total fees for each of the four years are, respectively, $142, $435, $415 and $425. The total registration for 1931-1932 was 258, graduates, 57 The ninetieth session begins Sept. 15, 1932 and ends June 15, 1933. The Dean is Torald Sollmann, M.D.

Columbus

Ohio State University College of Medicine, Neil and Eleventh avenues —Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized in 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 48 professors and assistant professors, 76 lecturers, instructors, demonstrators and others, a total of 124 Two years of collegiate work is required for admission The course covers four years of thirty-four weeks each Tuition fees are $196, $186, $186 and $196 each year, respectively, for residents of Ohio, and $150 additional for nonresidents. The total registration for 1931 1932 was 353; graduates, 75. The next session begins Oct. 4, 1932, and ends June 14, 1933. The Dean is J. H. J. Upham, M.D.

OKLAHOMA

Oklahoma City

University of Oklahoma School of Medicine.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. The first class graduated in 1911. Coeducational since organization. Beginning September, 1928, the entire course has been given at Oklahoma City. It has a faculty of 30 professors, 44 associate and assistant professors and 63 instructors, a total of 137. Two years of college work is required for admission The course covers four years of nine months each Since 1928 the course has included a fifth year consisting of a hospital internship, which will affect graduates of 1933. An optional course of six years is offered for the degree of B S. and M.D. The total fees for the four years are, respectively, $128, $95.50, $33 and $25 50 For students residing outside the state of Oklahoma there is a tuition fee of $200 a year. The total registration for 1931-1932 was 236, graduates, 47. The thirty-second session begins Sept. 19, 1932, and ends June 5, 1933. The Dean is Lewis Jefferson Moorman, M.D.

OREGON

Portland

University of Oregon Medical School, Marquam Hill.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 60 professors and 141 lecturers, assistants and others, a total of 201 Entrance requirements are three years of college work or its equivalent The course is four years of thirty three weeks each The total fees for the four years are, respectively, $220, $215, $210 and $210 for residents of Oregon, and $60 a year additional for nonresidents The total registration for 1931-1932 was 246; graduates, 55 The forty sixth session begins Oct 1, 1932, and ends June 12, 1933 The Dean is Richard B Dillehunt, M D

PENNSYLVANIA

Philadelphia

Hahnemann Medical College and Hospital of Philadelphia, 235 North Fifteenth Street —Organized in 1848 as the Homeopathic Medical College of Pennsylvania In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title Assumed present title in 1885 The first class graduated in 1849 Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course including English and either French, German or Spanish physics, chemistry and biology It has a faculty of 65 professors and 118 lecturers, instructors and others, in all, 183 The work covers four years of eight and one half months each Fees for each of the four years are, respectively, $405, $402, $352 and $375 The total registration for the college year 1931 1932 was 481, graduates, 111 The eighty fourth session begins Oct 3, 1932, and ends June 15, 1933 The Dean is William A Pearson, M D

Jefferson Medical College of Philadelphia, 1019 Walnut Street — Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa It was chartered with its present title in 1838 Classes have been graduated annually since 1826 In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees It has a faculty of 65 professors, associate and assistant professors and 183 associates, lecturers, demonstrators and instructors, a total of 248 Entrance requirements are a completed standard four year high school of college preparatory course, or the equivalent, and in addition three years of work leading to a degree in an approved college of arts and science, including specified courses in physics, general and organic chemistry and biology, with laboratory work in each subject The course of study covers four years of eight and one half months each The total fees for the four years are, respectively, $445, $430, $425 and $425 The total registration for 1931 1932 was 580, graduates, 143 The one hundred and eighth session begins Sept 21, 1932, and ends June 2, 1933 The Dean is Ross V Patterson, M D

Temple University School of Medicine, Broad and Ontario streets —Organized in 1901 The first class graduated in 1904 Coeducational since organization The faculty numbers 26 professors and 174 associates, assistants and others, a total of 200 Three years of college work is required for admission The fees for each of the four years, respectively, are $485, $455, $435 and $455 The total registration for 1931 1932 was 448, graduates, 107 The thirty first session begins Sept 28 1932, and ends June 15, 1933. The Dean is William N Parkinson, M D

University of Pennsylvania School of Medicine, Thirty Sixth and Pine streets —Organized in 1765 Classes were graduated in 1768 and in all subsequent years except 1772 and 1775 1779, inclusive The original title was the Department of Medicine, College of Philadelphia The present title was adopted in 1909 It granted the first medical diploma issued in America In 1916 it took over the Medico Chirurgical College of Philadelphia to develop it as a graduate school Coeducational since 1914 The faculty consists of 87 professors, associate and assistant professors, and 278 lecturers, associates, instructors and others, a total of 365 Three years of college work is required for admission, including courses in physics, biology or zoology, chemistry, including general inorganic, organic and analytic, English and French or German The first class is limited to 120 students, third and fourth to 135 each The course covers four years of thirty three weeks each The tuition fee is $500 each year, with a deposit fee of $15, a student health fee of $10 and a matriculation fee of $5 Total registration for 1931 1932 was 501; graduates, 132 The one hundred and sixty seventh session begins Sept 26, 1932, and ends June 21, 1933 The Dean is William Pepper, M D

Woman's Medical College of Pennsylvania, Henry Avenue and Abbottsford Road, East Falls —Organized in 1850 Classes were graduated in 1852 and in all subsequent years except 1862 It has a faculty of 31 professors and 63 assistants, lecturers and others, in all, 94 Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology, English and French or German The curriculum covers four years of eight months each Total fees for each of the four years are, respectively, $388, $407, $432 and $454 The total registration for 1931 1932 was 127, graduates, 22 The eighty third session begins Sept 21, 1932, and ends June 7, 1933 The Dean is Martha Tracy, M D

Pittsburgh

University of Pittsburgh School of Medicine, Bigelow Boulevard —Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910 The first class graduated in 1887 Coeducational since 1899 The faculty is composed of 22 professors and 200 associates, assistants and others, 222 in all Entrance requirements are two years of college work, including English, chemistry (inorganic and organic), physics and biology The course of study is four years of eight and one half months each The total fees for the four years, respectively, are $415, $400, $400 and $410 The total registration for 1931-1932 was 264, graduates, 66 The forty seventh session begins Sept 26, 1932, and ends June 7, 1933 The Dean is R R Huggins, M D

SOUTH CAROLINA

Charleston

Medical College of the State of South Carolina, 16 Lucas Street —Organized in 1823 as the Medical College of South Carolina The first class graduated in 1825 In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838 Classes were graduated in all years except 1862 to 1865, inclusive In 1913, by legislative enactment, it became a state institution Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917 It has a faculty of 38 professors and 42 lecturers, instructors and others, a total of 80 The course covers four years of eight months each The minimum requirements for admission are graduation from an approved four year high school and satisfactory completion of two years of college work The total fees are $285, $285, $290 and $290 each year, respectively Total enrolment for 1931 1932 was 144, graduates, 33 The one hundred and third session begins Sept 22, 1932, and ends June 1, 1933 The Dean is Robert Wilson, M D

SOUTH DAKOTA

Vermilion

University of South Dakota School of Medicine —Organized in 1907 Coeducational since organization Offers only the first two years of the medical course Two years work in a college of liberal arts is required for admission The faculty numbers 10 The fees are $100 each year for residents and $150 for nonresidents The total registration for 1931 1932 was 42 The twenty sixth session begins Sept 12, 1932, and ends June 5, 1933 The Dean is Augustus G Pohlman, M D

TENNESSEE

Memphis

University of Tennessee College of Medicine, 847 Union Avenue —Organized in 1876 at Nashville as Nashville Medical College First class graduated 1877, and a class graduated each subsequent year Became Medical Department of University of Tennessee in 1879 In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee This union was dissolved in 1911 The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons The Memphis Hospital Medical College was merged in 1913 Lincoln Memorial University Medical Department was merged in 1914 Coeducational since 1911 The faculty includes 80 professors and 140 assistants, instructors and others a total of 220 Entrance requirements are a high school education and ninety quarter hours of collegiate work Students taking the two year premedical course in Knoxville may secure the B S and M D degrees The fees are for the first quarter, $133 50, second to sixth quarters $113 50 each seventh to ninth quarters, $108 50 each, tenth to twelfth quarters, $118 50 each For residents of the state the charge is reduced $50 each quarter Total registration for 1931 1932 was 439, graduates 126 During the academic year 1932 1933, the quarters begin July 9 Sept 26 Dec 31 and March 20, and end Sept 28, Dec 17, March 22 and June 10 The Dean is O W Hyman, Ph D

Nashville

Meharry Medical College, Eighteenth Avenue North and Heffernan Street —This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College which became Walden University in 1900 First class graduated in 1877 Obtained new charter independent of Walden University in 1915 Coeducational since 1876 The faculty is made up of 24 professors and 33 instructors demonstrators, lecturers and others, 57 in all Two years work in a college of liberal arts is required for admission The curriculum covers four years of thirty two weeks each Tuition fees are, respectively, $250, $250, $250 and $260 each year Total registration for 1931 1932 was 192, graduates, 51 The fifty seventh session begins Oct 1, 1932, and ends May 25, 1933 The President is John J Mullowney, M D

Vanderbilt University School of Medicine, Twenty First and Edgehill —This school was founded in 1874 The first class graduated in 1875 Coeducational since September, 1925 The faculty consists of 84 professors and 116 lecturers, instructors, assistants and others, a total of 200 For matriculation, students must be seniors in absentia, who will receive the bachelor degree from their college after having completed successfully at least one year of work in the school of medicine The course covers four years of nearly nine months each The total fees for the four years, respectively, are $315, $315, $315 and $320 The total registration for 1931-1932 was 190, graduates 53 The fifty ninth session begins Sept 27, 1932, and ends June 14, 1933 The Dean is Waller S Leathers, M D

TEXAS

Dallas

Baylor University College of Medicine, 810 College Avenue — Organized in 1900 as the University of Dallas Medical Department In 1903 it took its present name and became the Medical Department of Baylor University It acquired the charter of Dallas Medical College in 1904 Coeducational since organization The first class graduated in 1901 The faculty consists of 61 professors and 67 instructors and assistants, a total of 128 Entrance requirements are two years of college work in addition to a four year high school education The course is four years of eight months each. The fees for each of the four years, respectively, are $312, $297, $282 and $287. Total registration for 1931-1932 was 356; graduates, 67. The thirty-third session begins Sept. 26, 1932, and ends May 29, 1933. The Dean is W. H. Moursund, M.D.

Galveston

University of Texas School of Medicine, 912 Avenue B — Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 42 professors and 24 lecturers and instructors, a total of 66. The curriculum covers four years of eight months each. The entrance requirement is two years of collegiate work in addition to a four-year high school education. The freshman class is limited to 100 students on a scholarship basis; only Texans are accepted. The total fees for the four years, respectively, are $82, $78, $66 and $80. Total registration for 1931-1932 was 328; graduates, 71. The forty-second session begins Oct. 1, 1932, and ends May 31, 1933. The Dean is George E. Bethel, M.D.

UTAH

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Coeducational since organization. Gives only first two years of medical course. Each school year covers thirty-six weeks. Three years of collegiate work is required for admission. The medical faculty consists of 7 professors and 17 lecturers and assistants, a total of 24. The fees are $190 for the first year and $200 for the second year. Total registration for 1931-1932 was 68. The twenty-sixth session begins Sept. 27, 1932, and ends June 3, 1933. The Dean is L. L. Daines, M.D.

VERMONT

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 30 professors and 39 lecturers, instructors, preceptors and others, a total of 69. Seventy-two hours of college work in addition to a four-year high school education is required for admission. The course of study covers four years of nine months each. For residents of Vermont the tuition fee is $300 each session. Nonresidents are charged an additional $75 each session. A student activity fee of $30 is charged all students not holding academic degrees or in attendance four years previously, and a $25 fee for the Doctor's degree. The total registration for 1931-1932 was 156; graduates, 36. The next session begins Sept. 16, 1932, and ends June 19, 1933. The Dean is J. N. Jenne, M.D.

VIRGINIA

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session 1920-1921. It has a faculty of 31 professors and 38 lecturers, instructors, assistants and others, a total of 69. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology. For residents of Virginia the total fees for the four years, respectively, are $377.50, $355, $330 and $325. Nonresidents are charged an additional $50 each year. The total registration for 1931-1932 was 241; graduates, 49. The one hundred and ninth session begins Sept. 15, 1932, and ends June 13, 1933. The Dean is J. Carroll Flippin, M. D.

Richmond

Medical College of Virginia, Twelfth and Clay streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 60 professors and 80 lecturers, instructors and others, a total of 140. The requirements for admission are a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and English. The course covers four years of eight and one-half months each. Total fees for the four years, respectively, are $307, $307, $292 and $322. Nonresidents are charged an additional $100 each year. The total registration for 1931-1932 was 362; graduates, 91. The ninety-fifth session begins Sept. 13, 1932, and ends May 30, 1933. The Dean is Lee E. Sutton, Jr., M.D.

WEST VIRGINIA

Morgantown

West Virginia University School of Medicine.—Organized in 1902 and gives only the first two years of the medical course. Coeducational since organization. Sixty-four semester hours of college work is required for admission, and the bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 11 professors and 11 lecturers, instructors, assistants and others, a total of 22. Fees: for residents of the state, $115 each year; for nonresidents, $365. The total registration for 1931-1932 was 142. The next session begins Sept. 8, 1932, and ends June 6, 1933. The Dean is John N. Simpson, M.D.

WISCONSIN

Madison

University of Wisconsin Medical School, 412 North Charter Street.—Organized in 1907. Gave only first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. For matriculation, at least two years in a college of arts and science or an equivalent training is required, including one year of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees for each year are, respectively, $150, $82, $60 and $43. An additional fee of $200 is charged for nonresidents. The total registration for 1931-1932 was 318; graduates, 52. The twenty-fifth session begins Sept. 21, 1932, and ends June 19, 1933. The Dean is C. R. Bardeen, M.D.

Milwaukee

Marquette University School of Medicine, 561 North Fifteenth Street.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 165. The entrance requirements are sixty-four semester hours of college work, including courses in physics, chemistry, biology, and a modern foreign language. The curriculum covers four years of eight and a half months each, and one year's internship in an approved hospital. The fees for the four years, respectively, are $389, $379, $379 and $364. The total registration for 1931-1932 was 259; graduates, 61. The twenty-first session begins Sept. 26, 1932, and ends June 7, 1933. The Dean is B. F. McGrath, M.D.

CANADA

Alberta

University of Alberta Faculty of Medicine, Edmonton.—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. The faculty includes 41 professors and 45 instructors, assistants and others, a total of 86. Fees for first year are $175 and $225 for other five years. The registration for 1931-1932 was 135; graduates, 22. The twentieth session begins Sept. 26, 1932, and ends May 16, 1933. The Dean is Allan Coats Rankin, M.D.

Manitoba

University of Manitoba Faculty of Medicine, Corner of Emily and Bannatyne Avenue, Winnipeg.—Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 46 professors, 79 instructors and assistants, a total of 125. The total fees for the five years, respectively, are $261, $251, $261, $261 and $120. Matriculation requirements include two years of college work in the faculty of arts and science of a recognized university subsequent to the complete high school course required for entrance to the latter. The course extends over four years of eight months each and a hospital internship. Total registration for 1931-1932 was 241; graduates, 34. The next session begins Sept. 22, 1932, and ends May 27, 1933. The Dean is A. T. Mathers, M.D.

Nova Scotia

Dalhousie University Faculty of Medicine, Halifax.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. Coeducational since 1871. It has a faculty of 27 professors and 42 demonstrators, lecturers and others, a total of 69. Requires for matriculation two years of arts and a graded course of four years and a hospital internship of one year. The fees are $277, $277, $282 and $262 for each year, respectively. The total registration in regular classes for 1931-1932 was 142; graduates, 34. The next session begins Sept. 13, 1932, and ends May 16, 1933. The Dean is H. G. Grant, M.D.

Ontario

Queen's University Faculty of Medicine, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. It admitted women from 1880 until 1883. In 1892 the school again became a part of Queen's University. The faculty numbers 55. The fees for the six years are, respectively, $175.75, $185.75, $185.75, $210.75, $210.75 and $240.75. The last includes the fee of $30 for the M.D., C.M. degrees. The course covers six years of thirty teaching weeks each, the first including courses in physics, chemistry, biology, history or economics or English. The total registration in 1931-1932 was 239; graduates, 48. The next session begins Sept. 29, 1932, and ends May 24, 1933. The Dean is Frederick Etherington, M.D.

University of Western Ontario Medical School, Ottaway Avenue, London.—Organized in 1881 as the Western University Faculty of Medicine; first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 71. Two years of premedical college work, including courses in physics, chemistry and biology, is required for admission to a four year medical course—all of which is referred to as a six year medical course The total fees to residents of Canada for the last four years, respectively, are $200, $200, $208 and $233. The registration for 1931-1932 was 140, graduates, 37. The next session begins Sept 21, 1932, and ends June 2, 1933 The Dean is A. B. Macallum, M D

University of Toronto Faculty of Medicine, Toronto—Organized in 1843 as the Medical Faculty of King's College Abolished in 1853 Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 it absorbed the Medical Faculty of Trinity University Coeducational since 1903 The course of study covers six years of eight months each, the first two being devoted largely to physics, chemistry, biology and cultural courses in history, science and English It has a faculty of 62 professors and 238 lecturers, associates and others, a total of 300 The fees are $170 for the first year, for the second, $220, $280 for the third year, $220 for the fourth and fifth years, and $243 for the sixth year The total registration for 1931 1932 was 663; graduates, 135 The next session begins Sept 27, 1932, and ends May 20, 1933. The Dean is J G FitzGerald, M D

Quebec

McGill University Faculty of Medicine, 3640 University Street, Montreal—Founded 1824 as Montreal Medical Institution, became the Medical Faculty of McGill University in 1829, first class graduated under the university auspices in 1833. No session between 1836 1839, owing to political troubles In 1905 it absorbed the Faculty of Medicine of the University of Bishop College Coeducational since 1919 The course consists of three premedical years, and five medical years of eight months each The faculty consists of 66 professors and 126 lecturers and others, a total of 192. The total fees for each of the five medical years are $267. The total registration for 1931-1932 was 467, graduates, 99 The next session begins Sept 14, 1932, and ends April 25, 1933 The Dean is Charles F. Martin, M D.

University of Montreal Faculty of Medicine, 1265 St. Denis Street, Montreal—Organized in 1843, incorporated in 1845 as the Montreal School of Medicine and Surgery. In 1891, by act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed Present name by act of Parliament in 1920 A class was graduated in 1843 and in each subsequent year. Coeducational since 1925 The faculty numbers 103 The course covers one premedical and five medical years, including a hospital internship. The total fees for each of the five years, respectively, are $240, $220, $262, $232 and $218. The total registration for 1931 1932 was 232, graduates, 35 The next session begins Sept 15, 1932, and ends June 15, 1933 The Dean is Louis de Lotbiniere Harwood, M D

Laval University Faculty of Medicine, Quebec—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine, first class graduated in 1855, and a class graduated each subsequent year The faculty numbers 88 The fees for each of the medical years are $160, $170, $160, $160 and $180 for residents of Canada Nonresidents are charged an extra fee of $190 each year The course covers one premedical year, including preliminary courses in physics, chemistry and biology, and five medical years Total registration for 1931-1932 was 255, graduates, 51. The next session begins Sept 13, 1932, and ends May 31, 1933 The Dean is Arthur Rousseau, M D

Saskatchewan

University of Saskatchewan School of Medical Sciences, Saskatoon—Organized in 1926. Coeducational Offers the first two years only following a minimum of two years' university work, mainly in physics, chemistry and biology Students require three more years for graduation, making in all seven years from matriculation. The medical faculty includes 8 professors and 4 lecturers and assistants, a total of 12. The fees are $120 for each year The total registration for 1931-1932 was 52 The next session begins Sept. 23, 1932, and ends May 12, 1933. The Dean is W S Lindsay, M D.

COLLEGE NEWS

The following current topics regarding medical schools have been reported:

University of California Medical School.—Plans are being prepared for the construction of a new building which will house the activities of the outpatient department of the University of California Hospital. The Christine Breon Fund became available for medical research in the medical school and the Lillie Spreckles Wegeforth Fund for research on respiratory infections.

Yale University School of Medicine Buildings Completed.—The Sarah Way Tompkins Memorial Pavilion of the New Haven Hospital, providing modern ward facilities for surgical cases, opened early in June, 1932

George Washington University School of Medicine.—During the past year a new four story laboratory building, adjoining the medical school, has been constructed This building will house the department of bacteriology, hygiene and preventive medicine, animal quarters for experimental work for the entire school, a central diagnostic laboratory for the hospital, a hospital record room, and a teaching laboratory for clinical microscopy. The old medical building is being completely remodeled and all laboratories are being newly equipped for teaching and investigative work Twelve new full-time men have been added to the teaching staff and the university has increased its appropriation to the medical school in order to promote a program of teaching and research along the most modern lines. In addition, many improvements have been made in the physical plant of the university hospital, adjoining the school of medicine, and plans have been drawn for a new addition to the dispensary and the installation of a new department of radiology.

Indiana University School of Medicine.—The Rotary Convalescent Home has been completed and placed in operation. Anonymous donors gave the well baby clinic, $5,500; oxygen chambers, $7,000; students' loan fund, $4,000; general use, $3,000 The Eli Lilly Fund has also contributed $5,000 for five years for research

University of Minnesota Medical School.—A new medical science building has been erected to be used primarily for dentistry but also for some medical classes

St. Louis University School of Medicine.—During the session 1931-1932, notable progress has been made toward the completion of a new unit of the University Hospital, the Firmin Desloge Hospital. Increased teaching facilities have been secured by the opening of a pediatric division at St Mary's Hospital, the division containing thirty-eight beds, with facilities in the other sections of the hospital for ten or more additional patients. The staff reorganization and the new program for medical administration at Mount St. Rose Sanitarium has been completed and has been functioning successfully during the second semester. The program for developing graduate fellowships has been enlarged, so that during 1931-1932 nine new appointments and six reappointments have been made.

University of Nebraska College of Medicine.—A reserve fund of $1,500 for special research was received and an endowment for the department of pediatrics from the estate of Dr. H. M McClanahan, former chairman of the department, the present valuation of which is $30,000. A sixty student addition to the present nurses' home is ready for occupancy.

Albany Medical College.—Four fellowships have been established, three through the Littauer Foundation and the other through the Schepp Foundation An appropriation was received from the Rockefeller Foundation for activities of the Regional Extension Department and from the General Electric Company for special research and other purposes

Columbia University College of Physicians and Surgeons.—The Institute of Ophthalmology of the Presbyterian Hospital is now in process of construction, with a capacity of 110 beds

New York Homeopathic Medical College and Flower Hospital.—Gifts amounting to $132,625 have been received from Mr. Eversley Childs, Sr, a trustee, Mrs. Eversley Childs, Sr, Charles Strauss, a trustee, the Flower Hospital Ladies Auxiliary, and the estates of various individuals.

University and Bellevue Hospital Medical College.—Gifts amounting to $205,779.47, principally for research, have been received.

Duke University School of Medicine.—The Nurses' Home was completed in June, 1932.

University of Cincinnati College of Medicine.—A gift of $3,000 was received from Mrs. Christian R. Holmes to prepare and equip the top floor of the Christian R. Holmes Hospital for Ophthalmological Service.

University of Oregon Medical School.—An appropriation for research from the Rockefeller Foundation of $13,000 was received, to cover a two year period.

Jefferson Medical College of Philadelphia.—The Curtis Clinic Building, containing all the outpatient departments, was opened.

Meharry Medical College.—The new plant, including medical school, hospital and nurses' home, was completed in course is four years of eight months each The fees for each of the four years, respectively, are $312, $297, $282 and $287 Total registration for 1931-1932 was 356, graduates, 67 The thirty third session begins Sept 26, 1932, and ends May 29, 1933 The Dean is W H Moursund, M D

Galveston

University of Texas School of Medicine, 912 Avenue B — Organized in 1891 The first class graduated in 1892 Coeducational since organization It has a faculty of 42 professors and 24 lecturers and instructors, a total of 66 The curriculum covers four years of eight months each The entrance requirement is two years of collegiate work in addition to a four year high school education The freshman class is limited to 100 students on a scholarship basis, only Texans are accepted The total fees for the four years, respectively, are $82, $78, $66 and $80 Total registration for 1931 1932 was 328, graduates, 71 The forty second session begins Oct 1, 1932, and ends May 31, 1933 The Dean is George E Bethel, M D

UTAH

Salt Lake City

University of Utah School of Medicine — Organized in 1906 Coeducational since organization Gives only first two years of medical course Each school year covers thirty six weeks Three years of collegiate work is required for admission The medical faculty consists of 7 professors and 17 lecturers and assistants, a total of 24 The fees are $190 for the first year and $200 for the second year Total registration for 1931-1932 was 68 The twenty sixth session begins Sept 27, 1932, and ends June 3, 1933 The Dean is L L Daines, M D

VERMONT

Burlington

University of Vermont College of Medicine, Pearl Street, College Park — Organized with complete course in 1822 Classes graduated in 1823 to 1836, inclusive, when the school was suspended It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years Coeducational since 1920 It has a faculty of 30 professors and 39 lecturers, instructors, preceptors and others, a total of 69 Seventy two hours of college work in addition to a four year high school education is required for admission The course of study covers four years of nine months each For residents of Vermont the tuition fee is $300 each session Nonresidents are charged an additional $75 each session A student activity fee of $30 is charged all students not holding academic degrees or in attendance four years previously, and a $25 fee for the Doctor's degree The total registration for 1931 1932 was 156, graduates, 36 The next session begins Sept 16, 1932, and ends June 19, 1933 The Dean is J N Jenne, M D

VIRGINIA

Charlottesville

University of Virginia Department of Medicine — Organized in 1827 Classes were graduated in 1828 and in all subsequent years except 1865 Coeducational since the session 1920 1921 It has a faculty of 31 professors and 38 lecturers, instructors, assistants and others a total of 69 The requirements for admission are the completion of a four year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology For residents of Virginia the total fees for the four years, respectively, are $377 50, $355, $330 and $325 Nonresidents are charged an additional $50 each year The total registration for 1931 1932 was 241, graduates, 49 The one hundred and ninth session begins Sept 15, 1932, and ends June 13, 1933 The Dean is J Carroll Flippin, M D

Richmond

Medical College of Virginia, Twelfth and Clay streets — Organized in 1838 as the Medical Department of Hampden Sydney College Present title was taken in 1854 In 1913 the University College of Medicine was merged In 1914 the North Carolina Medical College was merged Coeducational since 1918 Classes were graduated in 1839 and in all subsequent years It has a faculty of 60 professors and 80 lecturers, instructors and others, a total of 140 The requirements for admission are a four year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and English The course covers four years of eight and one half months each Total fees for the four years, respectively, are $307, $307, $292 and $322 Nonresidents are charged an additional $100 each year The total registration for 1931-1932 was 362, graduates, 91 The ninety fifth session begins Sept 13, 1932, and ends May 30, 1933 The Dean is Lee E Sutton, Jr, M D

WEST VIRGINIA

Morgantown

West Virginia University School of Medicine — Organized in 1902 and gives only the first two years of the medical course Coeducational since organization Sixty four semester hours of college work is required for admission, and the bachelor's degree will be granted to those who finish the two years in medicine Session extends through nine months The faculty numbers 11 professors and 11 lecturers, instructors, assistants and others, a total of 22 Fees for residents of the state, $115 each year, for nonresidents, $365 The total registration for 1931-1932 was 142 The next session begins Sept 8, 1932, and ends June 6, 1933 The Dean is John N Simpson, M D

WISCONSIN

Madison

University of Wisconsin Medical School, 412 North Charter Street — Organized in 1907. Gave only first two years of the medical course until 1925, when the clinical years were added Coeducational since organization For matriculation, at least two years in a college of arts and science or an equivalent training is required, including one year of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131 The fees for each year are, respectively, $150, $82, $60 and $43 An additional fee of $200 is charged for nonresidents The total registration for 1931 1932 was 318, graduates, 52 The twenty fifth session begins Sept 21, 1932, and ends June 19, 1933 The Dean is C R Bardeen, M D

Milwaukee

Marquette University School of Medicine, 561 North Fifteenth Street — Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons Coeducational since organization It has a faculty of 165 The entrance requirements are sixty four semester hours of college work, including courses in physics, chemistry, biology, and a modern foreign language The curriculum covers four years of eight and a half months each, and one year's internship in an approved hospital The fees for the four years, respectively, are $389, $379, $379 and $364 The total registration for 1931-1932 was 259, graduates, 61 The twenty first session begins Sept 26, 1932, and ends June 7, 1933 The Dean is B F McGrath, M D

CANADA

Alberta

University of Alberta Faculty of Medicine, Edmonton — Organized in 1913 Coeducational since organization Has given the complete six year medical course since 1924 The faculty includes 41 professors and 45 instructors, assistants and others, a total of 86 Fees for first year are $175 and $225 for other five years The registration for 1931 1932 was 135, graduates, 22 The twentieth session begins Sept 26, 1932, and ends May 16, 1933 The Dean is Allan Coats Rankin, M D

Manitoba

University of Manitoba Faculty of Medicine, Corner of Emily and Bannatyne Avenue, Winnipeg — Organized in 1883 as Manitoba Medical College, first class graduated in 1886, and a class graduated each subsequent year The college transferred all its property to the University of Manitoba in 1919 and assumed the present title Coeducational since organization The faculty includes 46 professors, 79 instructors and assistants, a total of 125 The total fees for the five years respectively, are $261, $251, $261, $261 and $120 Matriculation requirements include two years of college work in the faculty of arts and science of a recognized university subsequent to the complete high school course required for entrance to the latter The course extends over four years of eight months each and a hospital internship Total registration for 1931 1932 was 241, graduates, 34 The next session begins Sept 22, 1932, and ends May 27, 1933 The Dean is A T Mathers, M D

Nova Scotia

Dalhousie University Faculty of Medicine, Halifax — Organized in 1867 Incorporated as the Halifax Medical College in 1875 Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885 In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license First class graduated in 1872 Coeducational since 1871 It has a faculty of 27 professors and 42 demonstrators, lecturers and others, a total of 69 Requires for matriculation two years of arts and a graded course of four years and a hospital internship of one year The fees are $277, $277, $282 and $262 for each year, respectively The total registration in regular classes for 1931-1932 was 142, graduates, 34 The next session begins Sept 13, 1932, and ends May 16, 1933 The Dean is H G Grant, M D

Ontario

Queen's University Faculty of Medicine, Kingston — Organized 1854, first class graduated in 1855, and a class graduated each subsequent year The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston It admitted women from 1880 until 1883 In 1892 the school again became a part of Queen's University The faculty numbers 55 The fees for the six years are, respectively, $175 75, $185 75, $185 75, $210 75, $210 75 and $240 75 The last includes the fee of $30 for the M D, C M degrees The course covers six years of thirty teaching weeks each, the first including courses in physics, chemistry, biology, history or economics or English The total registration in 1931-1932 was 239, graduates, 48 The next session begins Sept 29, 1932, and ends May 24, 1933 The Dean is Frederick Etherington, M D

University of Western Ontario Medical School, Ottawa Avenue, London — Organized in 1881 as the Western University Faculty of Medicine, first class graduated in 1883, and a class graduated each subsequent year Present title in 1923 The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913 Coeducational since 1913 The faculty numbers 71 Two years of premedical college work, including courses in physics,

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, AUGUST 27, 1932

MEDICAL EDUCATION, 1932

The survey of medical education presented elsewhere in this issue clearly formulates one of the most serious problems now confronting our profession. Chart 1 shows that the number of medical graduates during the last ten years has steadily increased and that it now exceeds, by 50 per cent, the average annual loss to the profession through death. Moreover, there is a growing tendency for prospective medical students in excess of the numbers which our own schools can accommodate to seek their professional training in Europe or Canada. The number of these expatriated students, so far as reported to us, is this year 63 per cent larger than in 1930-1931. It may reasonably be expected that after graduation these men and women will return to this country to practice, adding several hundred more to the number annually licensed. The United States already has more physicians in proportion to its population than any other country in the world; if this ratio is still further increased, it is evident that an oversupply of doctors threatens, with an inevitable lowering of the standards of the profession. Perhaps there is need for professional birth control.

Seldom does any one assert that the test of fitness to practice, administered by the state licensing boards, is too severe. Yet even by this test the graduates of the majority of the European schools make a poor showing. The analysis of the state board records for five years seems to afford justification for the requirement of an additional period of training in the case of most of these physicians who have been educated abroad.

A powerful incentive to raising the standards of hospitals has been the desire for qualified interns, and hence for the approval of the Council on Medical Education and Hospitals. The result of this activity has been an increase in the number of hospitals approved for intern training, which now have places for 1,325 more men or women than the schools annually turn out. This situation constitutes a hardship for those institutions which are unable to secure adequately trained men or women as interns. However, competition is undoubtedly impelling many hospitals to improve greatly their facilities for intern training. Perhaps a solution of this problem may be found in lengthening the average duration of the internship and the more definite assignment of surgery to the rôle of a specialty.

CUBAN PHYSICIANS REVOLT

Newspapers recently announced that the physicians of Cuba employed by the mutual aid societies had revolted against the terms of their employment and that at the request of the president of Cuba they had agreed to postpone their strike for seventy-two hours. The president is studying the dispute, which is precipitated by a refusal of the societies to drop from their membership lists all persons financially able to pay regular fees for medical attendance.

The situation thus precipitated in Cuba was called to the attention of the House of Delegates of the American Medical Association in 1927 by Dr. J. M. Penichet, professor of ophthalmology in the University of Havana. The conditions of medical practice in Cuba are unusual. The population is slightly over 3,000,000 and there are about 3,000 physicians practicing in the island. This would seem to indicate approximately 1,000 available patients for each physician, whereas actually such is not the case. Some two thirds of the population are affiliated with the Spanish mutual aid societies. About fifty years ago the Spaniards established this form of practice primarily to take care of laborers. For the sum of $2 a month, members of the society are entitled to medical care in case of illness. In addition, the societies have developed clubhouses, schools, libraries, gymnasiums, ballrooms and similar amusements, and in some instances they own banks. Physicians are employed on small salaries to provide medical care. There are approximately twenty of these health societies. One of them has at least 60,000 members and another some 20,000 members. In addition to hospitals they have exceedingly ornate and handsome clubhouses, which constitute a rallying place for their membership. Shortly the plantation owners and other wealthy patrons of these organizations decided to avail themselves of the same privileges as were accorded to the laborers. As a result the private practice of medicine began to fall into desuetude and therewith the medical profession itself began to retrograde. In his address to the American Medical Association in 1927, Professor Penichet pointed out that the mutual aid societies were able to function largely through exploitation of the medical profession. The physicians formed a federation to oppose these powerful trusts and to free the medical profession. Previously to 1927 the profession had revolted twice, and there has been constant conflict since that time.

In a trip recently made to Cuba by Dr. George H. Kress, editor of *California and Western Medicine*, he

September, 1931, and the session of 1931-1932 opened in the new buildings, with new equipment

Vanderbilt University School of Medicine.—An appropriation of $250,000 was made by the Rockefeller Foundation for research over a period of eight years, an appropriation of $50,000 was made by the General Education Board for the purchase of books and periodicals by the medical library to be distributed over a period of four years, and a gift of $3,600 by nieces and nephews of Mr Leslie Warner of Nashville (plus a similar amount donated by Vanderbilt University), to be known as the Leslie Warner Fund for the Study and Treatment of Cancer, was received

University of Texas School of Medicine—The dedication of the John Sealy Hospital Outpatient Department, the Medical Laboratory Building and the Rebecca Sealy Residence for Nurses occurred May 30-31

Medical College of Virginia—Gifts amounting to $65,601 81 for the St Philip Hospital and its school of nursing library, the outpatient department, postgraduate clinic, crippled children's clinic, research in pharmacology and toward the maintenance of the library, were received A college library is under construction and will be ready for use during the session 1932-1933

Marquette University School of Medicine.—A new medical building, erected at a cost of $500,000, is ready for occupancy and all activities and classes of the medical school will be resumed in the new building for the session 1932-1933 Opportunities will be offered for graduate study in the basic sciences in correlation with clinical work in the various hospitals of the community The building will also afford accommodations for some of the basic scientific departments of the dental school

McGill University Faculty of Medicine.—A gift of $1,232 652 was received from the Rockefeller Foundation for the endowment of a Neurological Institute

Laval University Faculty of Medicine.—A new amphitheater, new equipment and a new museum have been provided for the department of anatomy New buildings have been erected for the Institut de Biologie and Institut du Cancer at Quebec

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in the Association of American Medical Colleges, as defined in its By Laws, are

1 Satisfactory completion of a minimum of collegiate instruction, as provided below in subsection I, or by

2 Examination, as provided in subsection II

SUBSECTION I—The minimum of collegiate instruction required for entrance to medical schools and medical colleges in membership in the association shall be 60 semester hours [1] of work which shall include the subjects hereinafter specified, in institutions approved by accrediting agencies acceptable to the executive council of the association Exception may be made under this section in that any member may admit applicants who have fulfilled the requirements in American or foreign institutions not approved by such accrediting agencies, provided that all admissions so made shall be reported to the executive council and shall be published in the next annual report of the council

All collegiate instruction given in satisfaction of this requirement must be based on the same entrance requirements and must be of the same quality and standard of instruction as that required for a baccalaureate degree in the institution in which the candidate receives his preparation

The sixty semester hours of collegiate instruction, indicated above, shall include a minimum total number of semester hours in each of certain required subjects and the specified science subjects shall include a minimum number of semester hours of laboratory work as follows

Requested Subjects	Minimum Total Semester Hours	Minimum Semester Hours of Laboratory Work
1 General chemistry (*a*)	8	4*
Organic chemistry (*b*)	4	0
2 Physics (*c*)	8	2*
3 Biology (*d*)	8	4*
4 English literature and composition (*e*)	6	

* *Included in minimum total semester hours*

Explanations as to content in each of these required college subjects together with suggestions to desirable additional study in certain subjects are as follows

(*a*) *General Chemistry*—Eight semester hours required, including 4 semester hours of laboratory work In the interpretation of this rule, work in qualitative analysis may be included as part of general chemistry [2]

(*b*) *Organic Chemistry*—A completed course of 4 semester hours required, consisting of didactic exercises, which should cover a discussion of the aliphatic, carbocyclic and heterocyclic series [3]

(*c*) *Physics*—Eight semester hours required, of which 2 semester hours shall consist of laboratory work It is urged that this course be preceded by a course in plane trigonometry [4]

(*d*) *Biology*—Eight semester hours required, of which at least 4 semester hours shall consist of laboratory work This requirement may be satisfied by a course of 8 semester hours in either general biology or zoology, or by courses of 4 semester hours each in zoology and botany, but not by botany alone Courses in physiology and hygiene, sanitation, entomology, bacteriology, histology and similar subjects covered in the medical curriculum shall not be accepted as part of the premedical college requirement in biology [5]

Students who present at least 90 semester hours of college work may substitute for the foregoing biologic requirements at least 8 semester hours in the psychologic or sociologic sciences

(*e*) *English Composition and Literature*—The usual introductory college course of 6 semester hours or its equivalent is required

SUBSECTION II—Admission to medical schools and medical colleges in the association may be granted to candidates on the basis of examinations as hereinafter provided These examinations shall be conducted by such agencies as may be designated from time to time by the executive council of this association

(*a*) Candidates who have completed not less than 60 semester hours of collegiate instruction but who lack the full requirements in not more than two of the required subjects may be admitted on successfully passing examination in these subjects as provided above

A candidate to be examined under this section must give evidence of scholarship of high order.

(*b*) Candidates who have completed not less than 90 semester hours of collegiate instruction, but who lack credit in any or all of the required subjects, may be admitted on successfully passing examinations in these subjects as provided above

All candidates for the comprehensive examination must present evidence of having accomplished work of distinction in one or more fields of learning

The standards of instruction shall be as specified under subsection I

---

[1] A semester hour is the credit value of sixteen weeks' work, consisting of one lecture or recitation period per week, each period to be of not less than fifty minutes duration net At least two hours of laboratory work per week shall be necessary to be considered as the equivalent of one lecture or recitation period

[2] It is highly desirable that either the elements of physical chemistry be included in the course in general chemistry or presented as a supplementary course in the elementary physical chemistry

[3] It is recommended that additional work be offered in organic chemistry and that this additional work include a fair proportion of laboratory work

[4] In addition to the required course in general physics it is recommended that colleges provide an elective course suitable for students who desire more knowledge of physics than the general course affords and who expect to apply this knowledge to medicine and biology, rather than to engineering and physics

[5] In all cases the premedical biologic work should emphasize the great generalizations of biology—e g, the cell doctrine comparative anatomy and embryology recapitulation of phylogeny in ontogeny, adaptation to environment Special attention is called to the value of an elective second year course in general physiology in which a study is made of the application of physics and chemistry to life processes

> The cases have accordingly run to fine distinctions, and speaking for myself I doubt whether some dispositions in favor of animals held to be charitable under former decisions would be held charitable today. For instance, antivivisection societies, which were held to be charities by *Chitty J.* In re Foveaux (1895, 2 Ch. 501, 507), and were described by him as near the borderline, might possibly in the light of later knowledge in regard to the benefits accruing to mankind from vivisection be held not to be charities.

If the criterion by which the character of trusts is to be determined, in order to ascertain whether they are or are not charitable trusts, is the benefit that mankind will derive from them, it is difficult to see on what basis trusts for the hindrance or prevention of animal experimentation can be adjudged charitable. Certainly the weight of the evidence proves that animal experimentation is of benefit to mankind—and to animals, too, for that matter. If animal experimentation is for the benefit of mankind and of animals, bequests to hinder or prevent such experimentation obviously cannot be for the benefit of mankind, and bequests to accomplish that end cannot be charitable bequests. It may be argued that such reasoning is begging the question; that it assumes that the benefits that have been and are being derived from animal experimentation are at best not sufficient to offset the alleged cruelty of such experimentation. The answer is that there is no cruelty associated with animal experimentation that is not within the reach of the ordinary laws for the prevention of cruelty to animals. The fact that prosecutions for cruelty in connection with animal experimentation are practically unheard of, despite the vigilance of antivivisectionists, is evidence of the absence of such cruelty. The trouble with the antivivisectionists' reasoning lies in the fact that they fail to distinguish between pain and cruelty and set up their own standards of cruelty, which are not the standards of the law nor standards of the community.

From the decision of the Court of Appeal, an appeal was taken to the House of Lords. Apparently before a decision was reached there the contending parties had arrived at a compromise. The House of Lords therefore authorized the payment of £25,000, about $87,000, out of the residuary estate, to provide, in a manner approved by the proper court, for establishing and assisting homes or hospitals for animals, but on condition that no part of that sum should be available for antivivisection propaganda.

Probably these two decisions represent the general trend of mature and cultured thought on the subject of animal experimentation, when uninfluenced by lurid appeals to the imagination and by appeals to self interest. Both decisions were based on the orderly presentation of legal evidence, not on such clamorous, virulent, emotional speech-making as commonly fills the air when animal experimentation is discussed before legislative committees. If such committees would limit the presentation of evidence in the same way that it is limited by the courts, their decisions could be relied on to be as sound as the recent decisions of the U. S. Board of Tax Appeals and the English House of Lords and Court of Appeal. Doubtless, however, in the United States at least, the political aspects of hearings before legislative committees and the absence of well defined rules of evidence and procedure will continue too often to render orderly judgment impossible.

Current Comment

PREPAREDNESS FOR IMMUNIZATION

In most instances, oral administration of killed B. typhosus or of its lytic products fails to lead to the development of antibodies so far as can be determined. Nevertheless, Ruge[1] of the University of Kiel asserts that such oral vaccines are far from being ineffective. He claims that they lead to the development of a specific preparedness of the tissues, which is manifested by a more rapid and much more abundant production of antibodies on subsequent *subcutaneous* injection with the same vaccine. This specific preparedness, he believes, is in itself sufficient to insure relative personal safety under ordinary conditions of exposure. His data suggest a new technic for the clinical estimation of specific resistance, with numerous collateral applications in the study of allergy and of reciprocal bacterial relationships.

EXPERIMENTAL EVOLUTION OF BACTERIA

Many important advances in clinical medicine have followed the introduction of new or simplified laboratory technics, particularly such as yield dependable data in the hands of the average laboratory technician. A recently introduced method of this type, which may modify current conceptions of immunity, is the serial plating method of Hauduroy.[1] In a typical application of this method, Ryan and Arnold[2] of the University of Illinois were able to report the experimental evolution of certain "granules" in apparently sterile body fluids which passed through two or three intermediary stages to their final "transformation" into conventional bacteria or yeasts. The new serial plating method consists essentially in spreading an apparently sterile body fluid on the surface of nutrient agar or other solid culture medium. The "spread" is incubated two or three days, at the end of which time it shows no detectable microbic growth. Each "spread" is now "mopped up" with a small volume of nutrient broth and replanted on a fresh agar surface, the transplantations being repeated, if necessary, a dozen times. In the University of Illinois studies of apparently sterile stomach or duodenal smears after feeding Bacillus prodigiosus, the first demonstrable growth was not noted till the fifth serial transplant. The regenerated B. prodigiosus on this fifth plate appeared as a fusiform bacillus, "spindle-shaped rods with very slender tapering ends." Later transplants gave colonies with "an internal arrangement verified the status of the situation as related by Professor Penichet. In an account in his publication he pointed out its significance in relationship to conditions in this country. The medical profession of our own country certainly cannot anticipate better treatment or a more favorable consideration in relationship to some of the schemes now being exploited here. Certainly the Cuban medical profession has been but poorly rewarded for some fifty years of trial of such practice in that country. Inevitably, the physician who in times of stress disposes of his medical birthright as a professional man finds himself the drudge of the group that has purchased his scientific freedom. The physicians in Cuba who are the employees of the mutual aid societies work day and night for a pittance and are so constantly driven by the excessive demands on their services that they are unable to give to any patient the individual medical attention necessary to intelligent and satisfactory medical care. The rich patrons under these contracts no doubt demand and receive better service than is rendered to the membership generally. The old psychologic and biologic laws which communistic propagandists would invalidate in reforming medical care go right on working and eventually invalidate the experiments.

---

[1] Ruge, H.: Zentralbl. f. Bakt. **124**: 276 (May) 1932.

[1] Hauduroy, P.: Compt. rend. Soc. de biol. **97**: 1392, 1927.

[2] Ryan, V., and Arnold, L.: Proc. Soc. Exper. Biol. & Med. **29**: 899 (April) 1932.

TRUSTS OPPOSING ANIMAL EXPERIMENTATION NOT CHARITABLE

Animal experimentation as a means of promoting human and animal welfare has recently received the sanction of two tribunals of great importance, one in the United States and the other in England. Both decisions tend to brighten the outlook for the protection of medical science against the perpetual warfare that threatens it through bequests for the support in perpetuity of organizations opposed to experiments on animals.

In the American case,[1] the United States Board of Tax Appeals held that a bequest to a society organized for "the total abolition of all vivisectional experiments on animals and other experiments of a painful nature" was not a bequest to a corporation organized and operated exclusively for the prevention of cruelty to animals, and that therefore the amount of such a bequest could not be deducted from the principal of an estate in computing the federal estate tax. The decision of the Court of Appeal in the English case[2] raised the question whether, "in the light of later knowledge in regard to the benefits accruing to mankind from vivisection," bequests designed to hinder and prevent vivisection would today be regarded as charitable bequests. On appeal, the House of Lords forbade the use for antivivisection propaganda of any part of the legacy concerning which the question was raised. The English decision is of only persuasive influence in the United States, but the changing view suggested by it with respect to bequests to create trusts to carry on activities against animal experimentation is of vital importance. Unless such trusts can be shown to be "charitable" in character, they cannot be made to operate in perpetuity.

The decision of the U. S. Board of Tax Appeals is printed at length in this issue.[3] It is a remarkable statement of the value of experimentation, all the more cogent because of the dispassionate, nonmedical, judicial source from which it emanated. The executor of the estate against whom the decision was rendered may appeal to the courts for relief, but a decision by an appellate court would almost certainly do nothing more than strengthen the defense of animal experimentation that the decision affords.

The English case arose out of a bequest of the residuary estate of the testatrix, amounting to about £200,000, or nearly $700,000 at the present rate of exchange, for an alleged charitable institution for the service of animals, all the officials of which should be and should always have been declared antivivisectionists. Hospitals and homes for animals were to be established, having no declared vivisectionists in any way connected with their management, and refuges were to be established where animals of all kinds should live free from molestation by man. The heir at law and the next of kin attacked the legality of the bequest. The trial court decided against them, and they appealed to the Court of Appeal. The Court of Appeal concluded, from authorities which it cited, that if a bequest was designed to secure good treatment for animals and to insure humane conduct toward them, whether in connection with vivisection or under other circumstances, it was a charitable bequest. It was charitable, however, not because it afforded protection to animals but because it stimulated humane and generous sentiments in man toward the lower animals and thus promoted feelings of humanity and morality generally, repressed cruelty, and elevated the human race. But because the proposed refuges for animals were to protect their occupants only from molestation and destruction by man and to leave every member of the brute creation within the so-called refuges to be the prey of every other creature, the purpose of the bequest seemed to the court to offer no protection from cruelty to animals generally and to denote no elevating lesson to mankind. The order of the court below, declaring the trust proposed by the will to be a valid trust, was therefore reversed.

Lord Justice Russel concurred in the decision of the court but filed a separate opinion in which he said:

> So far as I know there is no decision which upholds a trust in perpetuity in favor of animals upon any other ground than this, that the execution of the trust in the manner defined by the creator of the trust must produce some benefit to mankind. . . .

---

[1] Pennsylvania Company for Insurance on Lives and Granting of Annuities, Executor of the Estate of A. Sidney Logan, deceased, petitioner v. Commissioner of Internal Revenue, respondent, 25 B. T. A. —.

[2] In re Grove-Grady; In re Plowden v. Lawrence, 98 L. J., Ch. 261; 1929) 1 Ch. 557, the Law Journal **71**: 329 (May 9) 1931.

[3] Taxing Antivivisection Bequests, this issue, p. 782.

Glenn C. Blome, George H. Hansmann, Douglas H. Brown and Clark N. Cooper. Friday Drs. Peterson, Hansmann and Harold D. Kerr will lecture on general surgery and Dr. Jacob Kulowski and his staff will present a series on orthopedic surgery.

KENTUCKY

Changes Among Health Officers.—Appointments of new health officers have recently been made in several counties. Dr. Ollie M. Goodloe, Louisville, succeeds Dr. Sam R. Page in Breathitt County. Dr. Gradie R. Roundtree, Horse Cave, has been appointed in Adair County, and Dr. Charles Fred Blankenship, Hawesville, in Hancock County. Dr. Carl N. Gambill, Salyersville, is to succeed Dr. Miriam Marting, health officer of Greenup County, who recently resigned. Dr. Ernest M. Ewers, Somerset, has resigned in Pulaski County.

Society News. — The Sixth Councilor District Medical Society met in Lebanon, August 11. Among the speakers were Drs. Emmet F. Horine and Morris M. Weiss, Louisville, on "Congestive Heart Failure"; Curran Pope, Louisville, fever treatment, and Caswell C. Turner, Glasgow, roentgen diagnosis of pulmonary tuberculosis.——Dr. Amplias O. Sisk, Lexington, addressed the Bourbon County Medical Society, Paris, July 21, on tetanus and Dr. Charles G. Daugherty, treatment of typhoid.——Drs. Francis M. Massie and Donnan B. Harding, Lexington, addressed the Mason County Medical Association, at Maysville, August 10, on intestinal obstruction and roentgen diagnosis of gallbladder disease, respectively.

MARYLAND

Bone and Radiological Conference.—The Surgical Pathological Laboratory of Johns Hopkins Hospital, Baltimore, announces its annual conference on bone lesions and radiologic aspects of tumor diagnosis, to be held, September 19-24, under the direction of Drs. Joseph C. Bloodgood and Charles Geschickter. The first day of the conference will be devoted to work of interest to oral surgeons and others interested in the jaws, teeth and oral cavity. Tuesday there will be conferences on tumors of the jaw and giant cell tumors and Ewing's sarcoma. The main bone demonstration will occupy the last three days.

Typhoid on Freighter.—An outbreak of typhoid among the crew of the British steamship *Victoria City* was under investigation, August 6, by the Maryland State Department of Health, the New York *Sun* reported. Nine members of the crew were in University Hospital in Baltimore under treatment for typhoid, and two other sick seamen remained aboard the boat docked at quarantine station, Curtis Bay. When the most seriously ill of the crew was first taken to the hospital, the quarantine physician diagnosed the disease as typhoid. This diagnosis was confirmed at the hospital. The freighter left Nikoliadoff, Russia, July 7, took on water at Alexandria, Egypt, and stopped at Constanta, Rumania, before proceeding to Baltimore, the newspaper stated.

MICHIGAN

Seniors Win at Golf.—The Seniors, a group of Detroit physicians who have been in practice for twenty-five years or more, defeated the Noon Day Study Club, composed of doctors under the age of 40, in their first annual golf match at Meadowbrook, August 3. The match play ended in 28½ points in favor of the Seniors to the 22½ points for the Juniors. Seventeen matches were played. An additional fifteen Seniors arrived at the club but found no opponents among the Juniors.

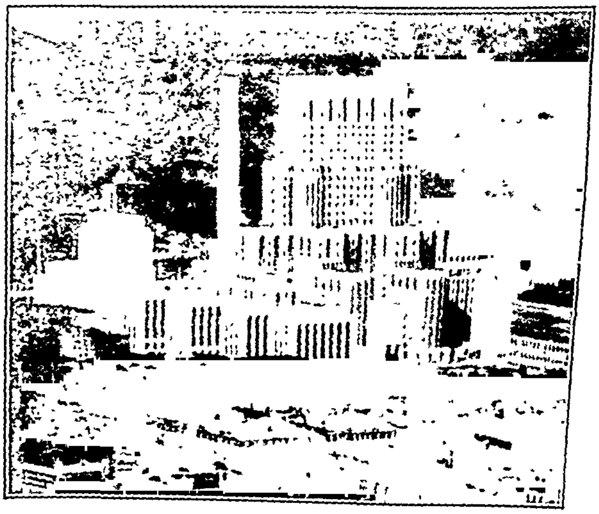
Personal.—Dr. Carl E. Badgley, Detroit, has been appointed assistant professor of surgery in the University of Michigan Medical School, Ann Arbor, succeeding Dr. Vernon L. Hart, who will be associated with the Dayton Clinic, Dayton, Ohio, October 1. Dr. Badgley, who had been associated with the university since 1919, resigned in 1929 to head the division of orthopedic surgery at Henry Ford Hospital. His appointment is effective, October 1.——Dr. Floyd J. Barkman, Calumet, has received the Order of the Purple Heart, for military merit during the World War.——Dr. Burt R. Shurly, Detroit, has been cited to receive the Order of the Purple Heart. The honor was ordered conferred for Dr. Shurly's service in the American Expeditionary Forces at base hospital number 36.——Dr. Eugene N. Nesbitt, Grand Rapids, has been appointed director of city welfare; he will continue his duties as superintendent of the city tuberculosis hospital.——Dr. Jay M. Burgess, Detroit, has been appointed coroner of Wayne County succeed his brother, the late Dr. James E. Burgess.

NEW YORK

Ordinance Against Fireworks.—Stimulated by an unusually high percentage of casualties from fireworks on the Fourth of July, the Common Council of Syracuse passed an ordinance, July 19, forbidding all display of fireworks except municipal displays under police supervision. The council was supported in its action by the Onondaga County Medical Society, the Syracuse Academy of Medicine, the Syracuse Eye, Ear, Nose and Throat Club and numerous civic organizations. The ordinance, which makes the use of fireworks punishable by a fine of not more than $150 or 150 days in jail, was passed without a dissenting vote. An amendment gives local dealers, who opposed the measure vigorously, until June 15, 1933, to dispose of their stocks.

New York City

New York Hospital-Cornell Medical Center to Open September 1.—The colossal plant of the New York Hospital-Cornell Medical College Association, which covers an area of three square blocks between Sixty-Eighth and Seventy-First streets overlooking the East River, will go into operation, September 1. The new medical center, which has been under construction since the fall of 1929, will consolidate three of New York's oldest hospitals and the Cornell University Medical College, making possible close coordination of university and hospital training for medical students. Dominating the closely connected buildings rises the central tower of the general hospital, twenty-seven stories high, opening on Sixty-Eighth Street. On the east along the river are three special hospitals One is the Women's Hospital, the successor of the old Lying-In Hospital and Manhattan Maternity Hospital. The second is a children's hospital and the third a psychiatric hospital, for which the late Payne Whitney made provision in his will. On the west of the main hospital building, along York Avenue, are the buildings of Cornell University Medical College. North of the hospital group are the nurses' residence and a building containing the power plant, service building, laundry, parking garage and, in the tower, an employees' dormitory. Accommodations are thus provided for 1,000 bed patients and approximately the same number of outpatients, 125 resident physicians, 500 nurses and 200 employees. Instruction will be provided for about 300 undergraduate medical students and for many advanced students. The main hospital is described as three buildings superimposed one on another. The general hospital forms the base of the structure, with two southern wings employed for the medical and surgical wards and two on the north side for the outpatient service and facilities for various types of treatment. Nineteen operating rooms fill the tenth and eleventh floors, separating the general from the private hospital. Above the private hospital are the living quarters for the resident staff. New York Hospital, the oldest in New York City and second oldest in the United States, wa formally opened in 1791 and was recognized as one of foremost schools of medicine and surgery. Students of Ki College were first to use its facilities; those of the Coll Physicians and Surgeons were instructed there from 1869. From 1866 to 1869 the medical college of Ne University was housed in the hospital. Since 191 funds given by the late George F. Baker, it has ith Cornell. The legacies of the late Payne



suggesting a tangled mass of threads." Faint pigment production was noted on the tenth serial plate. By the twelfth plate, B. prodigiosus had completed its ancestral evolutionary transformation into its usual present-day test-tube morphology. Somewhat similar primordeal fusiform and intermediary filamentous forms were noted in the ontogenic regeneration of yeasts. The fact that viable bacterial detritus can be demonstrated by the Hauduroy technic in otherwise sterile tissues, exudates and body fluids will probably produce much less certainty in diagnoses of "sterile abscesses," "aseptic inflammations" and local "allergic diseases."

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

August 29.	The Old Oaken Bucket.
August 31.	The Father of Medicine.

There will be no broadcast, September 3, of the fifteen minute talk usually scheduled for Saturday morning at 10:45.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—At a meeting of the Alameda County Medical Association in Oakland, August 15, the speakers were Drs. George F. Calvin, Oakland, on "Rôle of Endocrines in Uterine Hemorrhage"; William A. Clark, "Treatment of Uterine Displacement," and Edward N. Ewer, "Pelvic Inflammatory Diseases." J. F. Math, D.D.S., speaking for the dental profession, and Dr. Daniel Crosby, for the medical profession, gave a report of activities on modified cost in practice.——A Community Nursing Council was recently organized for Alameda County. Dr. Daniel Crosby, Oakland, is chairman.

Licenses Revoked.—At a meeting of the state board of medical examiners in San Francisco, July 14, the license to practice medicine of Dr. Carlos Hidalgo y Teran was revoked. Dr. Teran is now confined in the state narcotic hospital at Spadra, it is reported. The revocation of the license of Dr. Theodore H. Niemann, formerly of Los Angeles, at this meeting was based on narcotic derelictions. The board also revoked the license of Dr. Charles Bee Alexander, Alhambra; this action was based on his conviction of violation of the banking laws of the state of Washington. Dr. Alexander is now confined in the state penitentiary at Walla Walla, it is reported, having been sentenced, May 25, to "hard labor for the period of not less than one year and not more than fifteen years." Narcotic derelictions also caused the revocation of the license of Dr. John Theodore Kergan, Oakland, who is said to be an inmate of the state hospital at Spadra.

ILLINOIS

Personal.—Dr. and Mrs. Eli V. Rice, Polo, celebrated the golden anniversary of their wedding, August 8.——Dr. Samuel Reed Ward, Richmond, celebrated his ninetieth birthday, August 7, with a family reunion at Lauderdale Lake, near Elkhorn, Wis.

Chicago

Changes at University Medical Schools.—The following changes in the Division of Biological Sciences, University of Chicago and Rush Medical College, among others, are noted in the *University Record:*

APPOINTMENTS

Dr. Herbert E. Chamberlain, associate professor of psychiatry, department of pediatrics.
Dr. Oran I. Cutler, assistant professor, department of pathology.
Dr. Paul Oliver, assistant clinical professor, department of surgery, Rush Medical College.
Dr. Samuel Soskin, assistant professor, department of physiology.
Dr. David C. Straus, assistant clinical professor, department of surgery, Rush Medical College.
Dr. John M. Welch, assistant clinical professor of military medicine, department of medicine, Rush Medical College.
Dr. Agnes Beulah Cushman, clinical instructor, department of ophthalmology, Rush Medical College.
Dr. George Ormiston, instructor, department of pediatrics.
Dr. Gilbert Rich, clinical instructor in psychiatry, department of medicine, Rush Medical College.
Dr. Charles A. Sima, clinical instructor, department of medicine, Rush Medical College.

PROMOTIONS

Dr. Paul R. Cannon, to a professorship, department of pathology.
Dr. George M. Curtis, to a professorship, department of surgery.
Dr. Theodore Ticken, to a professorship emeritus, department of medicine, Rush Medical College.
Dr. George G. Davis, to an associate clinical professorship, department of surgery, Rush Medical College.
Dr. George E. Miller, to an associate clinical professorship (materia medica and toxicology), department of medicine, Rush Medical College.
Dr. James H. Mitchell, to an associate clinical professorship, department of dermatology, Rush Medical College.
Dr. Roger Throop Vaughan, to an associate clinical professorship, department of surgery, Rush Medical College.
Dr. Carl Philip Bauer, to an assistant clinical professorship, department of obstetrics and gynecology, Rush Medical College.
Dr. Morris Braude, to an assistant clinical professorship (psychiatry), department of medicine, Rush Medical College.
Dr. Douglas G. Campbell, to an assistant clinical professorship of psychiatry, department of medicine.
Dr. John A. Larson, to an assistant clinical professorship (psychiatry), department of medicine, Rush Medical College.
Dr. Richard B. Richter, to an assistant clinical professorship (neurology), department of medicine, Rush Medical College.
Dr. David B. Rotman, to an assistant clinical professorship (psychiatry), department of medicine, Rush Medical College.
Dr. George F. Dick, to chairmanship of department of medicine, Rush Medical College.
Dr. William F. Moncreiff, to chairmanship, department of ophthalmology, Rush Medical College.

RESIGNATIONS

Dr. Ludvig Hektoen as head of the department of pathology. He will continue as professor of pathology.
Dr. Earl B. Ritchie, as assistant professor of dermatology, department of medicine.

INDIANA

State Medical Meeting at Michigan City.—The Indiana State Medical Association will hold its eighty-third annual session at Michigan City, September 27-29, under the presidency of Dr. Franklin S. Crockett, La Fayette. Scientific sessions will begin Wednesday morning, September 28, with three sectional meetings at which courses of instruction will be given in "Mechanical Methods of Diagnosis," "Emergency Minor Surgery" and "Common Diseases of the Eye, Ear, Nose and Throat." Sections will also meet Thursday morning. Wednesday afternoon there will be a general scientific meeting and Thursday afternoon will be devoted to a general session on medical economics. Among speakers at the latter meeting will be Drs. Charles B. Wright, Minneapolis, on hospitalization of veterans and William C. Woodward, Chicago, director, Bureau of Legal Medicine and Legislation, American Medical Association, on "Legislation Before Congress of Interest to the Medical Profession." At the annual banquet, Thursday evening, Dr. Dean Lewis, Baltimore, president-elect of the American Medical Association, will give an address on "Changing Times in Medicine." A golf tournament will be held at the Long Beach Country Club Tuesday afternoon and the annual smoker will be held in the evening. The annual state health officers' conference will be held during this meeting, September 26-27.

IOWA

Annual Surgical Clinics.—Members of the faculty of the College of Medicine, State University of Iowa, Iowa City, will present the annual surgical survey course for physicians, arranged by the extension department, September 6-9. Tuesday will be devoted to gynecology under Dr. Everett D. Plass and his staff and to genito-urinary surgery under Dr. Nathaniel G. Alcock and his staff. Wednesday Dr. Dean M. Lierle and his staff will give instruction in otolaryngology and four surgeons in general surgery: Drs. Howard L. Beye, Frank R. Peterson, William H. Gibbon and Olan R. Hyndman. Thursday general surgery will be covered by Drs. Hyndman, Beye, the report said, accounting for 76 per cent of the 339 epidemics recorded in that time, 10,863, or 78 per cent, of the 14,266 cases and 424, or 94 per cent, of the 449 deaths. In Canada, four health officers reported four epidemics, involving 582 cases and 6 deaths during 1931. Paratyphoid B, scarlet fever and typhoid were the diseases included. One epidemic of paratyphoid B of 457 cases with 3 deaths was reported.

American Roentgen Ray Society.—The thirty-third annual meeting of the American Roentgen Ray Society will be held at the Book-Cadillac Hotel, Detroit, September 27-30. A consideration of pathology of the joints will occupy the first session. Wednesday morning will be devoted to a discussion of tuberculosis with special attention to its public health, diagnostic and therapeutic aspects, and the afternoon to uses of roentgenology in gynecology and obstetrics. Miscellaneous subjects will be considered, Thursday morning; the afternoon will be devoted to the question of roentgen and radium therapy. Speakers on the program will include Drs. Edwin A. Merritt, Washington, D. C., "Irradiation of the Parathyroids in Cystic Disease of the Bones"; Ralph S. Bromer, Philadelphia, "Osteogenesis Imperfecta"; Robert C. Moehlig, Detroit, "Pituitary Function as Related to Certain Conditions of the Uterus"; Henry J. Walton, Baltimore, "Roentgen Study as an Aid in Obstetrics," and Byrl R. Kirklin, Rochester, Minn., "Hypertrophy of the Pyloric Muscle and Duodenitis: Their Association and Roentgenologic Manifestations." Dr. Augustus W. Crane, Kalamazoo, will deliver the Caldwell Lecture, Wednesday evening.

PHILIPPINE ISLANDS

Society News.—The Manila Medical Society commemorated the fiftieth anniversary of the discovery of the tubercle bacillus with a special meeting, June 6, at which addresses were made, among others, by Drs. Carl M. Hasselmann, on "Robert Koch and His Work," and Antonio G. Sison, "Diagnosis of Pulmonary Tuberculosis."——Affiliation of the Occidental Negros Medical Association with the Philippine Islands Medical Association has recently been approved by the association council. Dr. Jose C. Locsin, Silay, is president.——Child Health Day was observed, June 19, by special designation of Governor General Roosevelt.

Medical School Celebrates Silver Jubilee.—The College of Medicine, University of the Philippines, observed the twenty-fifth anniversary of its founding with a banquet and special program at the School of Hygiene and Public Health, Manila, June 10. Dr. Jose Albert, chief of clinics, Philippine General Hospital, spoke on "Past and Future Achievements of the College of Medicine"; Dr. Sixto y Orosa, director, Bacolod Provincial Hospital, "Problems and Responsibilities of the Medical Profession," and Dr. Federico Delena, "The Present Medical Curriculum as Seen by a Young Graduate." Dr. Sixto de los Angeles, acting dean of the college, and Rafael Palma, LL.D., president of the university, also made addresses.

CANADA

University News.—The University of Alberta Faculty of Medicine conducted a five days' clinical course for physicians of the province at the University Hospital in May. It is expected that the course, the first of its kind at the university, will be continued and extended.

Personal.—Dr. Herbert S. Birkett, emeritus professor of otolaryngology, McGill University, was the guest of honor at a dinner given by his colleagues at the end of the school year. Dr. Birkett was graduated from McGill in 1886 and in 1887 began his association with the university as a demonstrator in anatomy. In 1894 he was made professor of laryngology and in 1906, professor of otolaryngology. During the World War he was in command of No. 3 Canadian General Hospital (McGill).——Dr. McGillivray S. Fraser, Winnipeg, chief health inspector of Manitoba for sixteen years, has retired from active service, having reached the age limit.

Institute for Study of Animal Parasites.—With the cooperation of the government of Quebec, the National Research Council and the Empire Marketing Board, an Institute of Animal Parasitology has recently been established at Macdonald College, McGill University, Montreal. Thomas Wright Moir Cameron, Ph.D., lecturer in helminthology at Edinburgh University, Scotland, has been chosen as director of the institute and research professor of animal parasitology, and Raymond L. Conklin, M.Sc., assistant professor of animal parasitology at McGill, will be associated with him in the development of the work. A new three story building with laboratory accommodations for a number of workers has been built for the institute.

Society News.—Dr. George A. B. Addy, St. John, N. B., was chosen president-elect of the Canadian Medical Association and Dr. Alexander Primrose, Toronto, became president at the annual meeting in Toronto in June. The next meeting will be held in St. John, June 19-23, 1933.——Dr. Charles C. Macklin, London, Ont., recently addressed the Ontario Laennec Society at Toronto, on "The Dynamic Bronchial Tree."——The annual meeting of the Alberta Medical Association will be held in Edmonton, September 20-22, under the presidency of Dr. Thomas W. E. Henry, Fort Saskatchewan.——Dr. Walter S. Turnbull, Vancouver, was made president-elect of the British Columbia Medical Association and Dr. William J. Knox, Kelowna, became president at the recent annual meeting.——The Manitoba Medical Association will hold its annual meeting in Winnipeg, September 8-10.——The first Empire Dental Convention was held in Toronto, August 8-12, when the British, Canadian and Ontario dental associations held joint sessions.

FOREIGN

Congress on Otorhinolaryngology.—At the Second International Congress on Otorhinolaryngology, which is to be held in Madrid, September 27-30, the subjects to be discussed are otosclerosis, ozena, scleroma, bronchoscopy and esophagoscopy, and treatment of malignant tumors by radium and roentgen rays. Among those who will participate in the program will be Drs. John Gordon Wilson, Chicago; Chevalier Jackson, Philadelphia; Otto Mayer, Vienna; Fernand Lemaitre, Paris; Ledoux, Brussels, and Barraud, Lausanne, Switzerland. The American delegation will sail, September 17, from New York on the S. S. *Rochambeau.* Information may be obtained from M. Marcel Colin, 8 Investment Building, Washington, D. C.

British Medical Election.—Dr. Thomas Gillman Moorhead, Dublin, president of the Royal College of Physicians of Ireland and regius professor of physic in Trinity College, University of Dublin, was chosen president-elect of the British Medical Association at the annual meeting in July in London. He will succeed Lord Dawson of Penn. It was announced that Dr. G. C. Anderson, deputy secretary of the association, would succeed Dr. Alfred Cox, who will retire, October 1. A portrait of Dr. Cox, painted by Sir Arthur Cope, was presented to the association at a special testimonial meeting. At the final general meeting a portrait of Dr. Elizabeth Garrett Anderson, first woman to be admitted to the association, was also presented. Dr. Leslie George Housden, Basingstoke, was announced as the winner of the Sir Charles Hastings Clinical Prize for 1932, for his essay entitled "Studies in Breast Feeding."

Society News.—Dr. Edgar D. Adrian gave the fourth Victor Horsley Memorial Lecture at the University College Hospital Medical School, London, July 20, on "The Visceral Sense Organs."——The West London Medico-Chirurgical Society celebrated its fiftieth anniversary at its annual dinner, July 8.——The third international congress of the International League Against Rheumatism will be held in Paris, October 13-15, under the presidency of Dr. R. Fortescue Fox, London. Subjects to be considered are early symptoms of chronic rheumatism, rheumatism and tuberculosis, rheumatism and the medical profession. Details may be obtained from Dr. J. Van Breemen, Keizersgracht 489, Amsterdam, or from Dr. Mathieu P. Weil, 60, Rue de Londres, Paris, IX.——Dr. John Shields Fairbairn, London, was recently elected president of the British College of Obstetricians and Gynecologists.——The seventh International Congress on the Care of Children will be held in Paris, July 5-9, 1933. Main subjects of discussion will be the medical supervision of sports and the relation between charity and the state.

Centenary of Irish Journal.—Two anniversaries are commemorated with the June issue of the *Irish Journal of Medical Science*—the centenary of the old *Dublin Journal of Medical Science* and the fiftieth anniversary of the founding of the Royal Academy of Medicine of Ireland, whose official organ the journal has become. In 1832, Robert John Kane began the publication of the *Dublin Journal of Medical and Chemical Science.* With the issue of May, 1836, the name was changed to the *Dublin Journal of Medical Science.* In 1845 the series was brought to a close and on Feb. 1, 1846, appeared the first number of the *Dublin Quarterly Journal of Medical Science.* The Royal Academy of Medicine, which had been founded in 1882, assumed full control of the journal in March, 1920. The centenary issue opens and closes with articles by Dr. Thomas P. C. Kirkpatrick, secretary general, Royal Academy of Medicine in Ireland. It contains papers by Dr. George Crile, Cleveland; Sir Humphry Rolleston, Sir Robert Jones, E. Hastings Tweedy, J. M. Munro Kerr, Jean-Louis Faure and E. Essen-Möller.

opened the way for its recent advances. The first building of the hospital, occupied for nearly a century, was on Broadway near Duane Street. In 1877 it moved to West Sixteenth Street near Fifth Avenue, from which it has moved to the new site. The hospital staff is now organized in five divisions: medicine, surgery, gynecology and obstetrics, pediatrics and psychiatry. All medical teaching that has to do directly with treatment of patients will be conducted by members of the staff, who will also hold appointments in the medical school faculty. Departmental chiefs will be on a full-time basis, though numerically the major portion of the staff will be composed of physicians also engaged in private practice. The New York Hospital-Cornell University project has been completed under the direction of a joint administrative board, of which the chairman is Edward W. Sheldon and the members are Frank L. Polk, William Woodward, Dr. Livingston Farrand, J. Du Pratt White, Dr. Walter L. Niles and J. Pierpont Morgan. Dr. G. Canby Robinson is the executive officer in charge.

PENNSYLVANIA

Society News.—Drs. Ferd E. Weddigen, Williamsport, and Thomas McKean Downs, Philadelphia, addressed the Lycoming County Medical Society in July on "The Friedman Modification of the Aschheim-Zondek Test for Early Pregnancy" and "Tannic Acid Treatment of Burns," respectively.——The Westmoreland County Medical Society held its annual welfare meeting at the Torrance State Hospital, August 23. Dr. Cornelius C. Wholey, Pittsburgh, reported a case of multiple personality, with motion pictures; Drs. Josephine Funderburgh and Theodore Wollak of the hospital staff discussed treatment of dementia paralytica with malaria and complications of arsenical medication, respectively.

Philadelphia

Appointments at Temple.—New appointments to the faculty of Temple University School of Medicine recently announced by Dr. William N. Parkinson, dean, include:

Dr. Ralph M. Tyson, professor of pediatrics.

Drs. William Henry Crawford, Edward D. Atlee and James Edward Bowman, instructors in pediatrics.

Dr. Henry H. Perlman, demonstrator in pediatrics.

Drs. Scott P. Verrei, Joseph Levitsky, Robert S. Heffner and Paul B. Bender, clinical assistants in pediatrics.

Dr. Nicholas Gotten, lecturer in neurosurgery.

Hugo Roesler, Ph.D, has been promoted to the rank of associate professor of radiology.

RHODE ISLAND

State Psychiatrist Appointed.—Dr. George M. Lott, Denver, formerly connected with the Institute of Child Guidance, New York, has been appointed psychiatrist to state institutions of Rhode Island, a full time position created by the last general assembly, according to newspaper reports. Dr. Lott will begin work, September 1, as psychiatrist to the state penal institutions and chief of staff of the psychiatric clinic serving the probation department and the children's bureau. He may also be called on by the attorney general to examine criminals. Dr. Lott is a graduate of the University of Colorado, class of 1928, and has served on the staff of the Boston Psychopathic Hospital and the Cornell Clinic in New York, in addition to the Institute for Child Guidance. Psychiatric work had previously been performed by Dr. John E. Donley, Providence, on a part time basis.

SOUTH CAROLINA

Society News.—At a meeting of the Pickens County Medical Society at the home of Dr. John L. Valley, Pickens, July 6, Dr. James R. Young, Anderson, president of the South Carolina Medical Association, discussed the problem of accidents with relation to hospitals, and Drs. Edgar A. Hines, Seneca, Thaddeus B. Reeves, Greenville, and Howard Anthony, Anderson, government hospitalization of veterans. Dr. Ernest W. Carpenter, Greenville, discussed arthritis and Dr. William A. Sheldon, Liberty, presented a case of tumor of the right hypochondrium.——Dr. William R. Barron, Columbia, addressed the Ridge Medical Society, Edgefield, recently, on surgery of the prostate.

UTAH

License Revocations.—Dr. George W. Baker, Ogden, who appealed to the state supreme court from an order issued by the state department of registration in October, 1931, revoking his license to practice, surrendered the license, July 29, after his case had been referred to the district court. The original order of revocation thereupon became effective. He was charged with performing an abortion. The license of Ben E. Mason, a chiropractor, was revoked in April on a charge of professing publicly to treat human ailments under a system or school of treatment or practice other than that for which he was licensed.

WISCONSIN

State Medical Meeting at Milwaukee.—The ninety-first annual meeting of the State Medical Society of Wisconsin will be held in Milwaukee, September 14-16, with headquarters at the Schroeder Hotel. Dr. George W. Crile, Cleveland, will give the annual oration in surgery, on "Denervation of the Adrenal Glands"; Dr. David P. Barr, St. Louis, will give the oration in medicine, on "The Parathyroid Glands and Their Relation to Calcium Metabolism." At the annual dinner, Thursday evening, September 15, Richard E. Scammon, Ph.D., Minneapolis, will be the speaker, on "The Foundation and Early History of St. Bartholomew's—the First Hospital in London." Guest speakers who will take part in the program include:

Dr. Max Cutler, Chicago, on "Clinical and Pathological Aspects of the Cancer Problem."

Dr. Udo J. Wile, Ann Arbor, Mich., "Occult Syphilis: A Neglected Factor in Diagnosis and Treatment."

Dr. Elexious T. Bell, Minneapolis, "Etiology and Pathology of Nephritis."

Dr. William W. Duke, Kansas City, "Dawn of a New Specialty in Medicine: Allergy."

Dr. Samuel Amberg, Rochester, Minn., "Observations on Some Abdominal Conditions in Childhood."

Dr. John W. Towey, Powers, Mich., "The Effect on the Lungs of Fungus Spores Found in Maple Bark."

Dr. Charles H. Watkins, Rochester, Minn., "Leukopenia and Acute Leukemias with the Differential Diagnosis from Similar Blood Conditions."

Dr. Elsworth S. Smith, St. Louis, "Treatment of Heart Disease."

Dr. Julius Bauer, Vienna, Austria, "Constitutional Factors in Disease."

The annual golf tournament will be held at the Tripoli Country Club, Tuesday, September 13. Clinics and demonstrations will be held in ten Milwaukee hospitals, Wednesday morning.

GENERAL

New Pediatric Journal.—Two issues have appeared of the new organ of the American Academy of Pediatrics, called the *Journal of Pediatrics.* Drs. Borden S. Veeder and Hugh McCulloch, St. Louis, are editors. The journal contains original articles, book reviews, editorials and the proceedings of the recent meeting of the academy.

Society News.—Officers elected at the meeting of the Pacific Coast Oto-Ophthalmological Society in Seattle, June 30-July 2, were Drs. Hans Barkan, San Francisco, president; Bertram C. Davies, Los Angeles, and Leo B. Bouvy, La Grande, Ore., vice president, and J. Frank Friesen, Los Angeles, secretary.——The Association of Military Surgeons of the United States recently presented to the Association of Military Surgeons of Mexico a bronze plaque as a token of friendship and good will. In recognition of the Washington bicentennial year, the plaque bears a profile of Washington. Lieut. Col. William Lee Hart and Col. Percy M. Ashburn, Medical Corps, U. S. Army, made the presentation at a session of the Mexican society in Mexico City, May 30.——National Pharmacy Week will be observed, October 10-15.

Deaths in 1930.—There were 1,343,356 deaths reported in the United States death registration area in 1930, with a rate of 1,133.1 per hundred thousand of population, according to statistics just made public by the U. S. Department of Commerce. Deaths and rate for 1929 were 1,386,363 and 1,191.9, respectively. The decrease was caused almost entirely by a reduction in the number of deaths from influenza from 64,853 in 1929 to 23,066 in 1930 and in those from pneumonia from 106,597 to 98,657. Whooping cough and diphtheria also decreased about 2,000 deaths each. Diseases of the heart and cancer showed the only significant increases. Heart diseases caused 253,084 deaths in 1930, compared with 245,244 in 1929, and the respective rates were 213.5 and 210.8 per hundred thousand. Deaths from cancer and other malignant diseases increased from 111,569 in 1929 to 115,265 in 1930 and the rate from 95.9 to 97.2. There were 29,080 deaths from automobile accidents exclusive of collisions with railroad trains (1,760) and street cars (463).

Milk-Borne Epidemic Diseases.—Nineteen state health officers reported thirty-seven milk-borne epidemics in the United States during 1931, according to the *Child Health Bulletin.* In this total, 1,383 cases and 22 deaths were involved. The diseases believed to have been spread by milk were bacillary dysentery, diphtheria, diarrhea, food poisoning, gastro-enteritis, paratyphoid, poliomyelitis, scarlet fever, septic sore throat, typhoid fever and undulant fever. Typhoid was the cause of eighteen of the thirty-seven epidemics. Septic sore throat, with nine outbreaks, was second. These two diseases were responsible for 73 per cent of the epidemics, 1,168, or 84 per cent, of the cases and 22, or 100 per cent, of the deaths. They occupied a similar position continuously in the last eight years.

are milk, butter, egg yolk and the fat of meat and fish. All these contain vitamin D, and of these milk, cheese and egg yolk are also rich in calcium and phosphorus. The chief foods hindering calcification are cereals—bread, oatmeal, maize, rice. Other foods which, by stimulating growth and not exerting a corresponding influence on calcification, tend to bring about defective bone formation include lean meat, white fish and most vegetable fats. Vegetables and fruit seem to be more or less indifferent in their action, although in some circumstances the calcium content, especially in the case of green vegetables, may aid calcification. Sometimes green vegetables may even contain a small amount of vitamin D, especially if recently exposed to sunlight. Naturally, also, the vitamin C content of fruit and vegetables prevents scurvy, and thus defends the bones against scorbutic influences. Thus the need for including calcifying foods in the diet is greatest during growth and when cereals are the main constituents of the diet. Since the child's consumption of food is limited, the greater the amount of bread and other cereals eaten the less likely is it that sufficient milk and eggs will be consumed to insure proper bone formation. Further, cereals are the cheapest and therefore the most greatly consumed articles of diet. Climatic conditions in this country are such that the baneful effects of cereals cannot ordinarily be counteracted by ultraviolet radiations. Indeed, all the circumstances—climatic, dietetic and economic—in this country appear to be conducive to defective bone formation. No cereal concoction or cereals ought to be given to an infant for the first eight or nine months, and even after this only in small amounts for the first two years. Cereals form far too great a part of the diet at all ages and might well be replaced to a large extent by milk, eggs, cheese, vegetables and fruit throughout life. The high cost of milk makes a sufficiency difficult for a large proportion of the population; large scale reduction of rickets by increased consumption of milk is therefore unlikely at present. Nor will butter act as a substitute for milk, since in the presence of cereals the antirachitic action of butter is small. But butter can be made much more antirachitic by giving it with additional calcium, 10 per cent calcium phosphate or carbonate. If some means could be found of making butter so that it retained the calcium of the milk, a great advance in the improvement of bone formation would follow.

PARIS

(From Our Regular Correspondent)

July 20, 1932.

Quarantine and Scarlet Fever Patients

The official regulations establish forty days as the duration of the quarantine of scarlet fever patients. It is the time that must elapse before the child who has recovered from scarlet fever will be readmitted to school. Professor Marfan, writing in the review *Le Nourrisson,* expresses the opinion that the regulations are too rigid and that the duration of the isolation should be determined in each case, for the time when the patient is no longer contagious varies. To appreciate the fact one need only recall that the gravity of scarlet fever and the fear of complications are measured by the intensity of the sore throat. The virus of scarlet fever has its seat chiefly in the throat; hence, as long as the mucosa of the throat is red, swollen and more or less covered with exudates, and as long as the glands of the neck remain frankly palpable, there is justification for the belief that the patient is still contagious, even though the temperature has been about normal for several days. On the other hand, when the throat of the patient has entirely cleared up and the glands of the neck have much diminished in volume, he may be regarded as noncontagious if the temperature is normal, and that stage is reached, in scarlet fever without complications, about the twenty-fifth day. Professor Marfan emphasizes that in all cases the quarantine should continue until the twenty-fifth day. The patient should then be examined as to the condition of the throat, the glands of the neck and the amount of albumin in the urine, if any. If the results are satisfactory, the patient should take a full soap and water bath, and, two days later, or the twenty-seventh day, all the examinations should be repeated. If there is no evidence of an unfavorable change in the patient's condition, he should be required to take a second soap and water bath and put on clean garments, after which he should leave the isolation room, which then should be fumigated and disinfected. In severe, complicated cases of scarlet fever, however, it happens that, even on the fortieth day, the throat has not entirely cleared up, while the adenopathy remains perceptible and the temperature is still above normal, or some complication may be in the course of evolution. Such patients are still contagious and should remain isolated. It will be seen, therefore, that the required period of isolation will vary greatly with the cases; but twenty-five days may be regarded as the minimum. The official period of isolation is thus often too long or too short.

Cancer Week

The custom is growing in France of setting aside, each year, a week to be devoted to propaganda, among the public, in favor of means of combating cancer. Tuberculosis week has become traditional with its sale of tuberculosis seals. Last year the sale of tuberculosis seals produced a profit of 20,000,000 francs ($800,000), which was used in support of the antituberculosis dispensaries or devoted to the erection of sanatoriums. Tuberculosis week furnishes, at the same time, an opportunity of giving advice to the general public by means of the distribution of tracts and the organization of radio lectures on the suitable methods of preventing tuberculosis and of treating it, once it is contracted. There has been, for some time, a mental hygiene week, which, by reason of its too special character, does not appear to have gripped the public. On the contrary, cancer week, which has just been celebrated, awakened great enthusiasm. Another useful week to celebrate in France would be temperance week, in support of the campaign against alcoholism. But there is little likelihood that such a week will be inaugurated, so great is the fear of antagonizing the dealers in alcoholic beverages, whose political influence is great.

Cancer week was the occasion for some remarkable addresses by eminent specialists, usually by the directors of the various anticancer centers of France. Professor Regaud, director of the Curie Institute in Paris, lectured on "How to Prevent and Cure Cancer of the Uterus." He affirmed that this form of cancer, if diagnosed early, and treated with radium or penetrating roentgen rays, would have its mortality reduced to less than one fourth of the present rate. Professor Lambret of Lille spoke on the necessity of early detection of cancer. Professor Sabrazès of Bordeaux spoke on "What Do We Know About Cancer?" He concluded that, while the key to the problem has not been found, worth-while progress has been made. Dr. Jeanneney of Bordeaux discussed "The Causes of Cancer." In the present state of our knowledge, he emphasized that neither heredity nor contagiousness can be regarded as demonstrated, at least not in man, although they have been demonstrated in certain laboratory animals. In view of the existing uncertainty, it is perhaps a good plan for persons to conduct themselves in the same manner as they would if these theories were established, by observing rigorous cleanliness and avoiding marriages between families in which there are numerous cases of cancer on both sides. Professor Imbert of Marseilles reviewed the forms of treatment recommended for cancer—radium, surgery, various medications—and concluded, in line with the other speakers, that their value depended on the promptness with which they were applied—that is to say, on an early diagnosis. Dr. Tisserand of Besançon discussed more particularly the question of uterine cancer and pointed out the magnificent results accomplished by surgery in cases recognized early—

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 29, 1932.

Annual Meeting of British Medical Association

The annual meeting of the British Medical Association was held in London. It was the centenary of the founding of the association.

THE PRESIDENTIAL ADDRESS

In his presidential address, Lord Dawson sketched the progress of medicine during the century of the association's existence. The knowledge of immunity foreshadowed by Jenner, established by Pasteur, and rationalized by Ehrlich and others, had extended. In this country the mantle rests on Wright, who has enriched medicine not only by his discoveries but also by his provocative thought. The study of immunity shows that the remedy lies within man himself—a potential energy which becomes kinetic in the face of the foe. It may be temporarily replaced by serum, but its origin and power must come from the tissues of the body. So it is with the hormone or vitamin which is a determinant of rather than a partner in bodily reaction. In these days the diseases of invasion are receding and the diseases of stress loom larger. A man's physical and mental make-up play no small part in the clinical picture he presents. The mental make-up, inherited and acquired, may color or even confuse the picture presented by a physical illness. There is a fundamental error of thought, that disturbances of the mind are under one's control and therefore are one's fault, whereas disturbances of the body are not under one's control. This false doctrine of control, and all the perversions of the doctrine of free will, with which it has long been entangled, is responsible for much faulty thinking and human suffering.

As to treatment, the mere giving of medicine will often accomplish but little; it is regimen and reeducation that are wanted. A new type of institution, distinct from a hospital, is needed—a health hostel for the overweight person who avows himself a small eater yet is clogged with his own metabolic products, for the various gastro-intestinal victims who need to be taught how to eat, and for the person with early diabetes who needs instruction in food calories. The good of the people demands education in matters of health. The medical faculty of a university could provide approved lectures. For research there is need for further coordination among bodies which represent varied aspects of medical knowledge, such as the basic sciences, medicine, surgery, obstetrics, education and administration. It is a reproach against our profession that we do not establish the means of giving collective advice when government depends increasingly on our knowledge.

THE NONPAYMENT OF PHYSICIANS FOR ROAD ACCIDENTS

At the meeting of the representative body, a motion was submitted urging the government to assume responsibility for the provision of emergency medical treatment in all road accident cases. The reasons given were the alarming increase of these accidents, the growing demands on physicians to render first aid, and the infrequency of payment. Last year 180,000 accidents occurred on the roads. First aid treatment by physicians might save much suffering and much money on the part of insurance companies—a fact which the companies were only beginning to realize—in relation to compensation. It was therefore suggested that the insurance companies might provide a "pool" for this purpose, as they did for fires in connection with the London salvage corps. A woman physician who lived near an important road said that she received payment for only 10 per cent of the accidents which she attended. The motion was referred to the council.

TRIBUTE TO THE FOUNDER OF THE ASSOCIATION

A pilgrimage was made to Worcester to pay honor to the memory of Sir Charles Hastings, a physician of that city, who founded in 1832 the Provincial Medical and Surgical Association, to improve the position and organization of the medical profession. From this association the British Medical Association has developed. The president unveiled a memorial window in the cathedral and a service took place at which Dr. Barnes, F.R.S., bishop of Birmingham, the well known modernist, preached. Having paid tribute to the foresight of Hastings in founding the association and to the great advance of medicine in England during the nineteenth century, he asked: What of the future? They were told to expect increased power to control disease, but his daily experience warned him that we are not safe from religious reaction. The basis of civilization was none too firm, and only by resolute and sustained vigilance could progress be preserved. New aspects of truth often bewildered men and aroused their instinctive opposition. They easily turned to old superstitions slightly disguised and invoked religious sanctions in defense of ingrained prejudices. Our knowledge of human heredity may so increase that we can, by preventing the birth of children to certain persons, raise the quality of our population. Will pseudoreligious prejudice not impede the good work? Religious prejudice gave strength to the clamor against vaccination when first introduced. During the last four centuries the search for truth had been impeded by superstitions and false dogmas.

HOW MAY A SPECIALIST NOTIFY HIS COLLEAGUES THAT HE HAS BEGUN TO PRACTICE?

After considerable discussion it was decided that a specialist may notify his colleagues that he has begun to practice (1) by calling on physicians already established in the area; (2) by sending them a sealed notification, provided there is no laudatory reference to himself; (3) by communications to the local division of the British Medical Association or other medical organization; (4) by sending reprints of his published work to physicians who may be expected to be interested. However, one speaker pointed out that calling on local physicians was a two-edged weapon and might cut off the budding specialist's chances of success. He recalled the fate of two brilliant young men who called in the manner of a commercial traveler. This cost them any chance they had of succeeding.

SHOULD MEDICAL PATENTS BE ALLOWED?

The question whether medical patents should be allowed has given rise to much discussion in the profession. A comprehensive resolution was passed. The meeting was invited to endorse a resolution passed at a joint conference of the Royal Colleges of Physicians and Surgeons and council of the British Medical Association, which declared that the further granting of patents in the medical field is undesirable in the public interest and that any action to prevent or regulate by international action the further granting of such patents would be welcomed. While the meeting was emphatic with regard to bacteriologic products, it was not convinced that the granting of patents for the synthetic preparation of new substances has been similarly detrimental to progress. It was also recognized that a purely national abolition of medical patents might unjustly penalize commercial enterprise in this country. It would gladly see established a mechanism by which patents for preparations other than biologic could be dedicated to the use of the public. It was held that until some such system is established the special position held by physicians in the community renders it undesirable that they should apply for patents in the medical field. Thus this resolution for the first time draws a distinction between bacteriologic and synthetic products.

FOODSTUFFS AND THE CALCIFICATION OF BONE

Prof. Edward Mellanby dealt with foodstuffs influencing calcification. Those stimulating the formation of perfect bone are milk, butter, egg yolk and the fat of meat and fish. All these contain vitamin D, and of these milk, cheese and egg yolk are also rich in calcium and phosphorus. The chief foods hindering calcification are cereals—bread, oatmeal, maize, rice. Other foods which, by stimulating growth and not exerting a corresponding influence on calcification, tend to bring about defective bone formation include lean meat, white fish and most vegetable fats. Vegetables and fruit seem to be more or less indifferent in their action, although in some circumstances the calcium content, especially in the case of green vegetables, may aid calcification. Sometimes green vegetables may even contain a small amount of vitamin D, especially if recently exposed to sunlight. Naturally, also, the vitamin C content of fruit and vegetables prevents scurvy, and thus defends the bones against scorbutic influences. Thus the need for including calcifying foods in the diet is greatest during growth and when cereals are the main constituents of the diet. Since the child's consumption of food is limited, the greater the amount of bread and other cereals eaten the less likely is it that sufficient milk and eggs will be consumed to insure proper bone formation. Further, cereals are the cheapest and therefore the most greatly consumed articles of diet. Climatic conditions in this country are such that the baneful effects of cereals cannot ordinarily be counteracted by ultraviolet radiations. Indeed, all the circumstances—climatic, dietetic and economic—in this country appear to be conducive to defective bone formation. No cereal concoction or cereals ought to be given to an infant for the first eight or nine months, and even after this only in small amounts for the first two years. Cereals form far too great a part of the diet at all ages and might well be replaced to a large extent by milk, eggs, cheese, vegetables and fruit throughout life. The high cost of milk makes a sufficiency difficult for a large proportion of the population; large scale reduction of rickets by increased consumption of milk is therefore unlikely at present. Nor will butter act as a substitute for milk, since in the presence of cereals the antirachitic action of butter is small. But butter can be made much more antirachitic by giving it with additional calcium, 10 per cent calcium phosphate or carbonate. If some means could be found of making butter so that it retained the calcium of the milk, a great advance in the improvement of bone formation would follow.

PARIS

(From Our Regular Correspondent)

July 20, 1932.

Quarantine and Scarlet Fever Patients

The official regulations establish forty days as the duration of the quarantine of scarlet fever patients. It is the time that must elapse before the child who has recovered from scarlet fever will be readmitted to school. Professor Marfan, writing in the review *Le Nourrisson*, expresses the opinion that the regulations are too rigid and that the duration of the isolation should be determined in each case, for the time when the patient is no longer contagious varies. To appreciate the fact one need only recall that the gravity of scarlet fever and the fear of complications are measured by the intensity of the sore throat. The virus of scarlet fever has its seat chiefly in the throat; hence, as long as the mucosa of the throat is red, swollen and more or less covered with exudates, and as long as the glands of the neck remain frankly palpable, there is justification for the belief that the patient is still contagious, even though the temperature has been about normal for several days. On the other hand, when the throat of the patient has entirely cleared up and the glands of the neck have much diminished in volume, he may be regarded as noncontagious if the temperature is normal, and that stage is reached, in scarlet fever without complications, about the twenty-fifth day. Professor Marfan emphasizes that in all cases the quarantine should continue until the twenty-fifth day. The patient should then be examined as to the condition of the throat, the glands of the neck and the amount of albumin in the urine, if any. If the results are satisfactory, the patient should take a full soap and water bath, and, two days later, or the twenty-seventh day, all the examinations should be repeated. If there is no evidence of an unfavorable change in the patient's condition, he should be required to take a second soap and water bath and put on clean garments, after which he should leave the isolation room, which then should be fumigated and disinfected. In severe, complicated cases of scarlet fever, however, it happens that, even on the fortieth day, the throat has not entirely cleared up, while the adenopathy remains perceptible and the temperature is still above normal, or some complication may be in the course of evolution. Such patients are still contagious and should remain isolated. It will be seen, therefore, that the required period of isolation will vary greatly with the cases; but twenty-five days may be regarded as the minimum. The official period of isolation is thus often too long or too short.

Cancer Week

The custom is growing in France of setting aside, each year, a week to be devoted to propaganda, among the public, in favor of means of combating cancer. Tuberculosis week has become traditional with its sale of tuberculosis seals. Last year the sale of tuberculosis seals produced a profit of 20,000,000 francs ($800,000), which was used in support of the antituberculosis dispensaries or devoted to the erection of sanatoriums. Tuberculosis week furnishes, at the same time, an opportunity of giving advice to the general public by means of the distribution of tracts and the organization of radio lectures on the suitable methods of preventing tuberculosis and of treating it, once it is contracted. There has been, for some time, a mental hygiene week, which, by reason of its too special character, does not appear to have gripped the public. On the contrary, cancer week, which has just been celebrated, awakened great enthusiasm. Another useful week to celebrate in France would be temperance week, in support of the campaign against alcoholism. But there is little likelihood that such a week will be inaugurated, so great is the fear of antagonizing the dealers in alcoholic beverages, whose political influence is great.

Cancer week was the occasion for some remarkable addresses by eminent specialists, usually by the directors of the various anticancer centers of France. Professor Regaud, director of the Curie Institute in Paris, lectured on "How to Prevent and Cure Cancer of the Uterus." He affirmed that this form of cancer, if diagnosed early, and treated with radium or penetrating roentgen rays, would have its mortality reduced to less than one fourth of the present rate. Professor Lambret of Lille spoke on the necessity of early detection of cancer. Professor Sabrazès of Bordeaux spoke on "What Do We Know About Cancer?" He concluded that, while the key to the problem has not been found, worth-while progress has been made. Dr. Jeanneney of Bordeaux discussed "The Causes of Cancer." In the present state of our knowledge, he emphasized that neither heredity nor contagiousness can be regarded as demonstrated, at least not in man, although they have been demonstrated in certain laboratory animals. In view of the existing uncertainty, it is perhaps a good plan for persons to conduct themselves in the same manner as they would if these theories were established, by observing rigorous cleanliness and avoiding marriages between families in which there are numerous cases of cancer on both sides. Professor Imbert of Marseilles reviewed the forms of treatment recommended for cancer—radium, surgery, various medications—and concluded, in line with the other speakers, that their value depended on the promptness with which they were applied—that is to say, on an early diagnosis. Dr. Tisserand of Besançon discussed more particularly the question of uterine cancer and pointed out the magnificent results accomplished by surgery in cases recognized early—

hence the advice given women of seeking an examination twice a year, with this object in view, by the surgeon, and especially on the appearance of any irregular hemorrhage. Dr. Degrais, specialist in radium therapy, spoke on this treatment, which is so often effective in skin cancers. Professor Hartmann, whose opinion in these matters is universally recognized, took as his subject "We Must Cure Cancer Patients," an encouraging slogan, in support of which he introduced the most precise statistics. Professor Forgue of Montpellier spoke on the topic "What Every Woman Should Know Concerning Cancer of the Uterus." Dr. Gunsett of Strasbourg uttered warnings against illusory methods of treating cancer. In France today a great many persons are taking magnesium salts, concerning the value of which there has been much publicity in the press, with many references to the laboratory experiments of Delbet, and imagine that they are thus fully protected against cancer. Professor Lambret cited the case of a patient in whom he diagnosed cancer of the breast, whereupon the patient replied that the diagnosis could not be correct, for she had been taking magnesium salts daily. Furthermore, Professor Sabrazès declared that, during the five year period that has elapsed since this medication was adopted by hundreds of thousands of persons, the cancer rate has not diminished in the slightest.

BERLIN

(From Our Regular Correspondent)

July 25, 1932.

Cancer Research

The Berliner Verein für Innere Medizin held recently a joint session with the Deutsches Zentralkomitee zur Erforschung und Bekämpfung der Krebskrankheit, which offered an opportunity to consider the present status of the cancer problem from its various sides.

Professor von Bergmann, the chairman, outlined a significant program for cancer research. He emphasized that in waging a crusade against cancer every individual scientific research will, in the end, be more significant and more successful than the greatest organizations, which have, to be sure, a pious desire but have not as yet the power of accomplishment.

The various addresses showed plainly that, in recent decades, the work in the field of tumor research has taken on a peculiar aspect. Tumor research is today no longer dependent on other fields to which it was formerly attached and from which it was derived, but it has now its own methods and has, without doubt, already enriched all branches of medicine, and particularly biology, with many important ideas and conceptions.

Dr. Hans Laser, of the Heidelberg institute for cancer research, was the first speaker on the program and discussed "Manometric Measurements of the Metabolism of Tissue Cultures." In harmony with the methods with which Otto Warburg obtained his famous results, he developed very exact and delicately elaborated methods of solving the quantitative problem, which is difficult of approach.

The second speaker, Frederick L. Hoffman, reported on "Recent Results of the Special Cancer Census in San Francisco."

Professor Caspari of Frankfort-on-Main considered "Nonspecific Immunity in Cancer, and the Significance of Necrohormones." Caspari presented the views in this field, which he has been studying for thirty years. He believes that the definitive healing of cancer, either through ray treatment or through operation, depends to a great extent on the so-called nonspecific defense reactions of the body, which are produced by the degeneration of the tumor cells and by the irritating substances given off by them to the body. That is the only explanation for the healing of tumors in spite of the fact that ray treatment does not, by any means, kill all the tumor cells. For the practical evaluation of these points of view, quantitative researches are urgently needed. Caspari did not depart from the realm of theory and refused to apply his theories to modern practice, leaving that to the future.

Before closing the session, Dr. Höfer of Berlin presented a cinematographic film of a tissue culture of human cancer cells.

Tomatoes and Cancer

The select committee of the Deutsches Zentralkomitee zur Erforschung und Bekämpfung der Krebskrankheit has studied the question that has been circulating among the people for some time as to whether the eating of tomatoes has any causal connection with the genesis of cancer. Recent scientific studies have not established anything positive. Various observations—the heavy consumption of tomatoes in Spain and the beneficent effects of tomato juice in the diet of infants—are likewise opposed to such an assumption. The committee reached the conviction that there is no reason for making the eating of tomatoes responsible for the genesis of cancer.

Is Sterilization an Injury in the Legal Sense?

Recently, the small city of Offenburg in Baden witnessed the trial of a case of great importance, and one that is awakening interest among physicians and the public. The trial resulted in a prison sentence of one year for Medizinalrat Merk (aged 60), the director of the municipal hospital in Kehl, for infliction of bodily injury, and likewise imposed prison sentences on two physicians of Kehl as his aids. It has opened a new problem for the medical and legal professions in Germany: Is medical intervention on a woman's body for the purpose of effecting sterilization punishable by law?

The director of the gynecologic institute in Berlin, Professor Liepmann, who was an expert witness in the case, deserves commendation for having recognized the fundamental importance of the Offenburg transactions and for having arranged for their discussion at his institute Doubtless most gynecologists have never surmised that such an operative intervention renders the operator liable to prosecution in the courts.

After Director Schmitz, of the Berlin Landesgericht, had discussed the problem of sterilization from the legal side, it was considered from the medical point of view by Professor Liepmann. In the case of the condemned Medizinalrat Merk, it is not a question of a careless or overzealous experimenter but of an experienced and skilled operator, whose interventions had always been successful. Forty-one cases of artificial sterilization were charged against him, although not one of his patients had suffered any injury, in the ordinary sense of the word. Furthermore, the condemned man is the government medical officer of the district, who was filled with a sense of responsibility in performing the duties of his office and was actuated by a readiness to relieve human suffering, which characterizes his profession. Precisely this situation of affairs enhances the fundamental significance of this case.

In a closing statement, Director Schmitz called attention to the fact that the trial judge had shown a wide understanding for the problem, as could be seen especially by the fact that he had taken a broad view of the matter and had not accepted the idea of a "severe bodily injury," which the penal code puts down as a penitentiary offense, but had only assumed a dangerous bodily injury.

Artificial sterilization of women, Professor Liepmann explained, is permissible if it is performed with a specific therapeutic purpose in view; for example, in connection with the removal of a cancerous tumor or a tuberculous focus. But this conception of a therapeutic purpose is not clearly defined from the medical point of view. It is certain, however, that the guilt of the physician is established if the artificial sterilization was performed solely for the purpose of making the woman sterile. In none of the forty-one cases, which constituted the charge against the defendant in the Offenburg trial, was that the case. But the court was convinced that Medizinalrat Merk did not always inquire zealously enough into the cases. Although the director of a hospital, he had to work without the aid of an assistant director and therefore had no time to write case histories. The court held that against him as a serious matter. Although the justification of the decision did not take such a narrow view of the conception of a therapeutic purpose, yet the trial judge thought that in a number of sterilizations the therapeutic purpose was not clearly in evidence. It is an offense against good morals, the justification sets forth, to perform a sterilization when the purpose is to obtain relief from the duties of conjugal and family life. There is grave danger that sterilized women may be led into dissolute ways and to undue yielding to their sexual desires. But the patients of the Kehl physician were without exception poor, anemic women of the proletariat class. There is another point: the consent of the patient to the surgical intervention has no bearing, according to the existing laws, on the guilt of the operator; even though the patient gave her consent, the offense against good morals still stands.

The judgment of the Offenburg trial has revealed a complete confusion of ideas. What will the eugenists and the promoters of race hygiene have to say, who, in the interest of public health, demand the sterilization of persons whose progeny is likely to constitute a menace to the public welfare? Such criminal prosecution of physicians for performing sterilization concerns the fundamental rights of the medical profession, and raises the question, as Director Schmitz formulated it: What is the basis of a physician's right to operate and by what legal provisions is that right assured? Here is an evident omission in the existing penal code, nor is the omission fully covered by the improved regulations of the new draft of the code. The Offenburg trial shows, at the same time, under what difficult conditions respected and honorable physicians must work and what causes may give rise to serious charges and the imposition of fines or a prison sentence.

BUCHAREST

(From Our Regular Correspondent)

July 21, 1932.

Tabetic Optic Nerve Atrophy

Dr. Joseph Hamburg, chief ophthalmologist to the Jewish hospital at Cluj, Rumania, carried on extensive experiments with the treatment of optic nerve atrophy by increasing cell oxidation. News of his achievements with this treatment reached the Vienna Ophthalmologic Society and resulted in an invitation to lecture. He did so, May 23. His report was favorably received and his method now is being used by some of the most prominent ophthalmologists of Vienna. In his investigations, Hamburg was led by the following reasoning: The therapeutic methods employed in this disease have aimed mainly at breaking through the blood vessel and nerve sheaths. According to the investigations of Igersheimer the spirochetes do not stay in the nerve itself but in the meninges and the adventitiae of the nerves and vessels, wherefore attacks against the barriers do not seem to be practical. These observations of Igersheimer support the theory that in the development of the disease some toxic components are indirectly acting on the spirochetes. The manner of action of these toxic factors is unknown. According to Dr. Hamburg this is the main point of the whole tabes question. He studied other toxic optic nerve atrophies. Methyl alcohol poisoning conforms with tabetic optic atrophy in many points. Knowledge of the chemical mechanism of the poisoning action in methyl alcohol intoxication is valuable in this analogy. In cases of methyl alcohol poisoning there is a reduction of the cell oxidation, provoked by the disturbance caused by heavy metal catalysis. Hamburg assumed that in cases of optic nerve atrophy a similar toxic action prevails and he tried to influence the morbid process by the administration of drugs that are capable of exaggerating oxidation, as thyroid hormone and manganese.

The best results are achieved by administering intramuscular injections of solution of potassium permanganate, 1 cc., or one or two thyroxine injections, given intravenously. He himself applied in the majority of cases potassium permanganate and only in a few cases thyroxine. By applying potassium permanganate he observed some by-effects, which, however, are not annoying. The principal by-effect is the acceleration of the pulse, sweating, and in some cases light trembling of the limbs, a curious coincidence reminding one of exophthalmic goiter. Besides these manifestations some patients complain of moderate pains in the lower limbs and joints, localizing these to the bones. Injections of thyroxine are not accompanied by such severe by-effects, and, if there are any, they are of short duration.

According to Hamburg, the visual power of tabetic patients is greatly influenced by physical work. The optimum of their visual power is found in the morning. Bodily work involves the consumption of oxygen and thereby the existing lack of oxygen is increased. He deems it important that tabetic patients should observe the rule of the strictest rest, particularly if they suffer from optic atrophy.

He treated seven patients. In five of these a considerable improvement could be noticed. In one of the cases the visual power rose from 3/50 to 3/12. The visual field increased three or four fold, and color vision returned. In another case the visual acuity improved from 1/35 to 1/10 and in the left eye from 1/50 to 1/10, with considerable increase of the visual fields on both sides. The white color limit extended fourfold. The third patient had an improvement of the visual power from 1/36 to 1/12 on the right side and from 1/36 to 1/16 on the left side, with an unchanged visual field. In the fourth case the visual power rose from 3/25 on the right side to 3/10 and on the left from 5/40 to 5/16. The right visual field was expanded to white color, and the blue-yellow sensation returned; on the left side the blue field was considerably expanded. In the fifth case light perception rose from 1 to 6 meters and also the seeing of hand motion improved.

Even if this slight gain does not mean much for the patient, the case should be evaluated as "positive." In two cases the visual power decreased after a transitory improvement. One of these patients was a child suffering from congenital syphilis.

Five of seven cases showed a decided improvement. It can be stated without undue optimism that the improvement could be ascribed to the treatment. It is safe to say that however skeptical one is, and in tabetic optic atrophy one must be skeptical, thyroxine and manganese, by increasing oxidation in the cells, are capable of favorably influencing tabetic optic atrophy. It needs further experimentation, and it will be a long time until final conclusions as to the definite results of this therapeutic method can be drawn.

Marriages

Howard E. Mathay, Youngstown, Ohio, to Miss Mary Siple of Cleveland, in Staunton, Va., August 3.

Edward Lawrence Voke, Akron, Ohio, to Miss Julia Eleanor Morton of New York, July 9.

Nathan Palmer Fitts, Williamsburg, Va., to Miss Lucille Branderberger of St. Louis, July 12.

Oscar Walter Friske, Beloit, Wis., to Margaret Hall Schulmeyer of Indianapolis, July 27.

Charles Harold Spiggle, Strasburg, Va., to Miss Ann Margaret Chiles, July 20.

Douglas Nelson Gibson to Miss Marcella Powell, both of Des Moines, in July.

Stewart M. Gibson, Southbridge, Mass., to Miss Bernice G. McGilvray, July 30.

Elmer W. Nahrwold to Miss Magdalen Lange, both of St. Louis, August 4.

Ruth Foljambe, Boston, to Mr. George Rogers Copeland, July 23.

Deaths

John George Spenzer ⊕ Cleveland, Medical Department of Western Reserve University, Cleveland, 1884, instructor in pharmacology at his alma mater and professor of chemistry at the dental school, 1894-1896, professor of general and medical chemistry and pharmacology at the Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1896-1910, professor of chemistry, legal chemistry and medical jurisprudence at his alma mater, 1910-1917, aged 67, died, July 26, in the Cleveland Clinic Hospital, of diabetes and prostatic hypertrophy.

Samuel Wyllis Bandler, New York, College of Physicians and Surgeons in the City of New York, 1894, member of the Medical Society of the State of New York and the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, fellow of the American College of Surgeons, formerly professor of gynecology at the New York Post-Graduate Medical School, author of 'Medical Gynecology,' aged 62, died, July 31, at his summer home in Scarsdale, N. Y.

Joseph Marion Little, Pana, Ill., Missouri Medical College, St. Louis, 1899, member of the Illinois State Medical Society, medical superintendent and owner of a sanatorium bearing his name, aged 64, was instantly killed July 11, when the automobile in which he was driving was struck by a train.

Cassius True Lesan ⊕ Mount Ayr, Iowa, Rush Medical College, Chicago, 1897, member of the state department of health, for many years county coroner and city health officer, served during the World War, aged 58, died, July 9, of arteriosclerosis and uremia.

Pennuel Columbus Worley, Shreveport, La., Memphis (Tenn.) Hospital Medical College, 1899, member of the Louisiana State Medical Society, aged 59, died July 21, in the North Louisiana Sanitarium, of acute intestinal obstruction.

Henry Franklin Wilkins, Birmingham, Ala., Medical College of Alabama, Mobile, 1893, aged 62, died, July 17, in the United States Veterans' Hospital, Alexandria, La., of chronic encephalitis with parkinsonian syndrome.

William Osborn Lambly ⊕ Lebanon, N. H., McGill University Faculty of Medicine, Montreal, Que., Canada, 1894, aged 60, died, May 17, at the Mary Hitchcock Hospital, Hanover, of acute hemorrhagic pancreatitis.

Hugh H. Atkinson, Indianapolis, University of Pennsylvania School of Medicine, Philadelphia, 1898, formerly on the staff of the Central State Hospital, aged 61, died suddenly, July 2, of angina pectoris.

Charles William Demong, Syracuse, N. Y., Syracuse University College of Medicine, 1906, member of the Medical Society of the State of New York, aged 50, died, June 25, of mitral insufficiency.

John Isaac Davis, Oteen, N. C., Ohio Medical University, Columbus, 1894, for several years on the staff of the U. S. Veterans' Hospital number 60, aged 63, died, July 5, of chronic myocarditis.

Homer Isaac Rexford ⊕ Willard, N. Y., Albany (N. Y.) Medical College, 1915, served during the World War, on the staff of the Willard State Hospital, aged 41, died, July 11, of aplastic anemia.

F. S. LeRoy Holmes, Kemptville, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1877, medical health officer for Kemptville and district for many years, died recently.

James E. Burgess, Detroit, Michigan College of Medicine and Surgery, 1893, for twenty years county coroner, aged 65, died, July 6, at his summer home near Pontiac, Mich., of heart disease.

Thomas Heisler Chattle, North Bay, N. Y., University of Vermont College of Medicine, Burlington, 1887, served during the World War, aged 68, died, July 8, of heart disease.

Rozel M. Curtiss, Marengo, Ill., College of Physicians and Surgeons, Chicago, 1884, Chicago Homeopathic Medical College, 1885, aged 76, died, July 3, of angina pectoris.

Marion A. Emshwiller, Montpelier, Ind., Medical College of Indiana, Indianapolis, 1891, served during the World War, aged 62, died, June 30, of carcinoma of the duodenum.

Frank W. Mitchell, Medford, Wis., Chicago Physio-Medical Institute, 1887, member of the State Medical Society of Wisconsin, aged 68, died, July 1, of heart disease.

Cornelius Joseph Egan ⊕ New York, New York University Medical College, 1897, aged 64, died, June 26, in the Royal Hospital, of acute gangrenous cholecystitis.

Charles J. Scott, Marietta, Ohio, Jefferson Medical College of Philadelphia, 1881, member of the Ohio State Medical Association, aged 74, died, June 24, of typhoid.

Hunter J. Duvall, Hutchinson, Kan., Kansas City Medical College, 1894, member of the Kansas Medical Society, aged 65, died, June 27, of carcinoma of the prostate.

George Young Hord, Keyesport, Ill., Medical College of Ohio, Cincinnati, 1878, formerly postmaster of Keyesport, aged 83, died, June 21, of carcinoma of the liver.

Donald Mackintosh, Pugwash, N. S., Canada, Harvard University Medical School, Boston, 1871, L.R.C.P., Edinburgh, Scotland, 1873, aged 84, died, February 10.

Donald D. Salley, Cope, S. C.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894, aged 62, died, June 16, in a hospital at Orangeburg.

Benjamin Franklin Houston, Corsicana, Texas, Medical Department University of Tennessee, Nashville, 1887, aged 79, died, May 26, of brain softening.

David Joseph Herlihy, Cambridge, Mass., Tufts College Medical School, Boston, 1916, served during the World War, aged 38, died, June 12, of pneumonia.

Clarence Allen Copeland, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1919, aged 45, died, June 26, of cerebral hemorrhage.

Rowland I. Haines, Pitman, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1890, aged 64, died June 25, of carcinoma of the rectum.

John Thornton Sibley, Los Angeles; American Medical College, St. Louis, 1874, aged 80, died, May 15, of softening of the brain and arteriosclerosis.

Abner O. Clark, Ridge, La., Medical Department of the Tulane University of Louisiana, New Orleans, 1887, aged 73, died, June 27, of heart disease.

Harry Bosworth Crocker, San Francisco, California Eclectic Medical College, Los Angeles, 1900, aged 55, died July 6, of cerebral hemorrhage.

Park M. Lehman ⊕ Ney, Ohio, Starling Medical College, Columbus, 1888, for thirty-five years postmaster, aged 74, died, July 9, of heart disease.

Agnes Walker ⊕ Bolinas, Calif., Cooper Medical College, San Francisco, 1893, aged 57, died, June 7, in San Francisco, of carcinoma of the liver.

Herman R. Russell, St. Paul, College of Physicians and Surgeons, Chicago, 1899, aged 60, died, June 29, in St. Luke's Hospital, of heart disease.

John M. Floor, Petersburg, Ohio, Eclectic Medical Institute, Cincinnati, 1875, aged 79, died, July 4, of injuries received in an automobile accident.

Joseph Powell Speight, Rocky Mount, N. C., Jefferson Medical College of Philadelphia, 1906, aged 47, died suddenly, July 29, of heart disease.

Gilbert N. Bailey, Baileyton, Tenn. (licensed, Tennessee, 1889), aged 65, died, July 5, of hypertrophic osteo-arthritis and chronic myocarditis.

James William May, Headrick, Okla. (registered in Oklahoma by the state board of health under the Act of 1908), aged 52, died, July 11.

Daniel F. Shipley, Westminster, Md., Hahnemann Medical College of Philadelphia, 1882, aged 76, died, July 9, of heart disease.

Thomas F. Bray, Reed City, Mich., Hospital College of Medicine, Louisville, Ky., 1894, aged 63, died, June 29, of heart disease.

Rose F. Jackson, St. Petersburg, Fla., Cleveland Homeopathic Medical College, 1899, aged 62, died, July 6, of chronic nephritis.

Jefferson Davis Austin, Clinton, S. C., Atlanta Medical College, 1885, aged 71, died, July 21, of arteriosclerosis.

Charles Frank Elrod, Chariton, Iowa (licensed, Iowa, 1886), aged 83, died, May 15, of cerebral hemorrhage.

Ernest D. Starbird, Denver, Gross Medical College, Denver, 1902, aged 59, died, June 12, of pneumonia.

Elmer G. Gray, McComb, Ohio, Columbus Medical College, 1892, aged 65, died, June 26, of heart disease.

C. C. Bruton, Nella, Ark. (licensed, Arkansas, 1903); aged 80, died, June 5, of senility.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

ABDOMINAL PAIN OF UNKNOWN ORIGIN

To the Editor—I have a patient who had a severe attack of abdominal pain in the lower part of the abdomen two weeks ago, following a ride on horseback of 7 miles There was nausea and vomiting of a severe nature He has had several attacks of this 'acute indigestion," as he calls it in the last few years Morphine, one fourth grain (16 mg), was required to relieve this pain He is a white man, aged 55 The physical examination revealed nothing at that time except some tenderness in the lower quadrants, most marked in the lower left Three days later the prostate was examined It was smaller than normal, and some soft areas were present The smear showed a few pus cells, with much granular debris, some corpora amylacea and a few prostatic granule cells There is no increase in the sensitiveness of the gland One week later he reported that he was feeling better than he had felt in six weeks and had gained 5 pounds (2 3 Kg) The prostatic smear at this time showed many clumps of pus cells and myriads of single pus cells It was no more tender than the normal gland One week later he reported that he had another attack, following a ride of 7 miles in a wagon This attack was not as severe as the first one two weeks before The prostatic smear at this time shows many pus cells, but no clumping of the pus cells Am I justified in making a diagnosis of chronic parenchymatous prostatitis? There are no symptoms of tuberculosis in the lungs or elsewhere Is prostatic massage contraindicated in a man of this age? What are the age limits for massage, if any? Please omit name and address

M D, Tennessee

ANSWER—The history of a severe attack of abdominal pain associated with nausea and vomiting, and the fact that it was necessary to give morphine to relieve this pain, leads one to make a diagnosis of abdominal colic The three common causes of abdominal colic of this severity are gallstone colic, kidney or ureteral stone colic, and intestinal colic Furthermore, in view of the fact that the patient has had several attacks of colic described as "acute indigestion," a careful examination to determine the cause of these attacks of pain should be made A plain roentgen examination of the urinary tract should be made to determine the presence or absence of stone, and if negative an intravenous pyelogram may be made If stone in the urinary tract has been ruled out, the next step would be the study of the gallbladder with plain films and with a cholecystogram Failure to obtain information from these two sources would justify a careful examination of the gastro-intestinal tract It is necessary, of course, in this differential diagnosis to rule out tabes dorsalis

From the further description it is evident that the patient has a mild chronic prostatitis This should be treated with gentle massage of the prostate at weekly intervals Heat by rectum or hot sitz baths are desirable The diagnosis of prostatitis is probably justified Prostatic massage is not contraindicated in this patient, and we know of no age limits for massage Nothing is stated regarding the condition of the patient's seminal vesicles Occasionally renal colic may be due to a chronic seminal vesiculitis with periseminal vesiculitis and involvement of the ureter

PULMONARY CONDITIONS IN RHEUMATIC FEVER

To the Editor—A boy, aged 15 years, suffering from rheumatic endocarditis with aortic insufficiency, had a form of fibrinous bronchitis, last year, with spitting up of bronchial casts at intervals of one week or one month On microscopic examination no bacilli of diphtheria or of tuberculosis were found on them The cardiologist who was treating him at that time excluded the hypothesis that the fibrinous bronchitis was due to circulatory stasis in his lungs Now the boy is suffering again from the same type of cough with spitting up of bronchial casts, and the cardiologist who is attending him now, in Europe, thinks that this type of bronchitis is due to the circulatory stasis in the lungs and therefore a sign of decompensation of the heart I looked up the literature on the subject and found that fibrinous bronchitis is sometimes due to circulatory disturbances from mitral stenosis, and this patient positively never had any mitral stenosis Could you give me your opinion or any reference I could look up? Please omit name

M D, New York

ANSWER—The pulmonary conditions associated with rheumatic fever and rheumatic endocarditis constitute an interesting diagnostic problem, about which varying views have been held for a long time Cheatle mentions several cases of pneumonia associated with rheumatic heart disease in his classic lectures on rheumatic fever No better clinical description can ever be written than Broadbent's

Among the pulmonary changes associated with rheumatic fever and rheumatic endocarditis may be mentioned (1) pulmonary compression associated with dulness and bronchial breathing at the left base, (2) pleural fluid associated with pulmonary compression at the bases, or pericardial effusion, (3) pulmonary infarction secondary to mural thrombi or to rheumatic phlebitis, (4) chronic passive congestion of the lungs as a result of impaired pulmonary circulation, (5) rheumatic pneumonia associated with histologic changes in the walls of the pulmonary arteries and perivascular spaces, and, finally, (6) frank bronchopneumonia occurring as an intercurrent infection at any stage of rheumatic fever

If these possibilities are reviewed in association with the physical phenomena observed in this case, a conclusion can probably be reached as to the origin of the fibrinous casts An excellent review on this subject is contained in the article entitled "Pleural and Pulmonary Lesions in Rheumatic Fever," by John R Paul (*Medicine* **7**:838 [Dec] 1928)

ECZEMA OF AUDITORY CANALS

To the Editor—A man has what I call weeping eczema of both external auditory canals He has had considerable trouble in the past with the wax hardening and packing right in the canal There is also in this wax considerable desquamation I have tried washing out with many kinds of antiseptic as well as plain salt water but yet the canal fills right up again with the wax and desquamation I have used ointments and have tried 25 per cent silver nitrate solution It is the most persistent thing I have ever seen The patient never has eczema in any other part of the body and enjoys good health generally

E B MINOR M D, Traverse City, Mich

ANSWER—It is assumed that no middle ear infection is present, draining into the canal and keeping up the irritation The silver nitrate was used in too strong a solution One might try swabbing the ear dry and painting the canal with 2 per cent solution of silver nitrate once a day then applying a thin layer of zinc oxide ointment, or swabbing it clean once or twice a day and applying

	Gm or Cc	
Rectified oil of birch tar N F	1 6	♏ xxv
Resorcinol	8	gr xiii
Liquid petrolatum sufficient to make	16	℥ ss

If these measures fail, roentgen rays may be tried by an expert This should not be continued after the eczema clears up or in any case more than eight weeks

SYPHILIS WITH POSSIBLE OPHTHALMIC MANIFESTATIONS OF OTHER DISORDERS

To the Editor—I have a patient with the following history There was a primary sore on the penis twenty years ago The Wassermann reaction at that time was four plus Treatment at that time consisted of mercury, mostly by mouth with a few intramuscular injections during the latter part of the treatment One treatment with arsphenamine was given several years ago When seen a few weeks ago the patient complained of slight headache and the vision was a little defective On physical examination the majority of reflexes were hyperactive The right pupil was regular in outline and responded well to light and in accommodation The left pupil was irregular in outline was smaller than the right and reacted very poorly A spinal puncture was done in the lower lumbar region and the fluid came out in an almost solid stream No manometer was at hand, so the pressure was not taken The 20 cc of fluid that was withdrawn was divided into two portions and sent to two reliable laboratories The first laboratory reported 2 leukocytes globulin negative, total protein 25 mg per hundred cubic centimeters Wassermann reaction negative, colloidal gold curve 1111100000 The second laboratory reported the colloidal gold curve 1110000000 gum mastic 1100000000 The Pandy test was negative Please advise treatment in this case Kindly omit name and address

M D Ohio

ANSWER—With what appears to have been a negative spinal fluid with respect to syphilis, this patient's probable diagnosis suggested by the headache, visual disturbance, pupillary changes and high fluid pressure is a localized syphilitic or other cerebral lesion, among which gumma, tumor and gliomatosis must be particularly considered The colloidal gold tests are not definitely first zone and would usually be interpreted as negative With the other essentially negative results in the fluid, the probabilities lean toward the diagnoses suggested An ophthalmologic examination of the optic nerve heads would have been in order before this lumbar puncture was done in order to detect possible papillitis and choked disk, and the examiner was fortunate not to have lost the life of his patient through medullary block Localized pachymeningitic processes, brain gummas and vascular neurosyphilis are well known to give negative spinal fluids to lumbar puncture

The possible chain of events can only be guessed at in this case, but one wonders whether the single injection of arsphenamine several years before did not revive without subsequently suppressing a latent process in the nervous system with the appearance now of what might almost be regarded as a late neurorecurrent phenomenon In all cases, even a single injection of arsphenamine should be followed up by heavy metal therapy to prevent allergic and precocious tertiary manifestations.

Treatment in this case should not be begun or resumed with the arsphenamines. Instead, the patient should receive large doses of potassium iodide by mouth; and a soluble mercurial salt, such as mercuric succinimide, 0.016 Gm. (one-fourth grain), three or four times weekly, intramuscularly, will give a rapid and at the same time safe response probably free from therapeutic shock. After twenty such injections the patient may be shifted to a bismuth compound, and after one or even two courses of ten weekly injections each, a further discussion of therapeutic possibilities in the light of improvement would be in order.

It must not be forgotten that syphilis is only one of the possibilities that will explain a picture of this sort and that other evidence of brain tumor and the like may be expected and should be searched for if improvement under treatment for syphilis is not reasonably prompt.

MENSTRUAL HERPES OR DERMATITIS

To the Editor:—A woman, aged 24, a light blonde, suffers from a vesicular dermatitis of the forehead, which occurs about twelve days before menstruation and which persists until shortly after the termination of the period. Her facial skin, which is very oily, shows enlarged pores, which are more pronounced over the nose than elsewhere. There has been some slight constipation, of nervous origin, for several months, during which time the menstrual periods have often been delayed for several days. She is using Armand's face powder and Richard Hudnut's rouge. What treatment do you recommend for her skin? Please omit name.

M.D., Arizona.

Answer.—In 1912, Matzenauer and Polland (*Arch. f. Dermat. u. Syph.* **111**:385) described a series of cases under the title of dermatitis symmetrica dysmorrhoica. The publication of this article was followed by the appearance of five other articles in the German literature. The eruptions were characterized by symmetrical streaks and bands on various parts of the bodies of neurotic young women during the menstrual period. However, the reports were not convincing and the eruptions were probably self inflicted.

Catamenial herpes on the face, genitalia or buttocks occurs with almost every period in some women. The eruption tends to occur in approximately the same area with each subsequent attack. In arriving at a diagnosis it is necessary to determine whether the eruption is an erythematous and vesicular dermatitis or is herpetic. In the former there would be an area of more or less well defined erythema in which would be found vesicles of various sizes. The herpetic eruption would be characterized by a group of vesicopapules, or vesicles on a markedly inflamed base. The skin between the papules might appear normal. The dermatitis would be apt to run an irregular course and end by disappearance of the erythema and exfoliation of the ruptured vesicles, whereas the herpetic vesicles would run a fairly definite course, each lesion undergoing spontaneous involution.

There appears to be no reason why a cosmetic dermatitis should occur before the menstrual period.

Radiotherapy would be of much value, whether the eruption is due to irritants or to the virus of herpes.

ANTITOXIN IN ANTITUBERCLE BACILLUS SERUM

To the Editor:—I should like to know the usual technical method for finding correct antitoxin amounts in antibacillary serum (T. B.).

G. Elizondo Martel, M.D., Cienfuegos, Cuba.

Answer.—The presence of a true toxin in the tubercle bacillus or medium of its growth (i. e., a toxin analogous to diphtheria toxin, eliciting the production of antitoxin on injection into a suitable animal) has not been established. Therefore it is impossible to determine the amount of antitoxin in antitubercle bacillus serum.

ASTHMA IN PALESTINE

To the Editor:—Will you please inform me whether the air of Palestine is advantageous to an asthmatic patient (of the bronchitic type)? There is no evidence of any anaphylactic etiology.

Philip I. Levine, M.D., Brooklyn.

Answer.—We understand that in summer in Palestine there is not only the extreme heat but the frequent prevalence of strong winds carrying much dust and sand, which are exceedingly irritating in character. It is doubtful, therefore, whether a stay in Palestine would be of any particular advantage to a person with asthma.

OINTMENT BASE FOR VAPORIZER MIXTURE

To the Editor:—I should like to know what ointment base would be most suitable for use in a vaporizer, containing camphor, menthol, eucalyptol and turpentine, and the method of preparation. Please omit name.

M.D., Rhode Island.

Answer.—Petrolatum is a suitable base. The camphor and menthol (1 per cent of each) are triturated until liquefied, the eucalyptol or turpentine (3 per cent) is added, and the mixture is incorporated with the petrolatum.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board for Ophthalmic Examinations: Montreal, Sept. 19. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

American Board of Obstetrics and Gynecology: The examination will be held in nineteen different cities in the United States and Canada, Oct. 22. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

American Board of Otolaryngology: Montreal, Sept. 17. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

Arizona: Phoenix, Oct. 3. Acting Sec., Dr. Jos. M. Greer, Professional Bldg., Phoenix.

California: *Reciprocity.* Los Angeles and San Francisco, Sept. 21. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Colorado: Denver, Oct. 4. Sec., Dr. William Whitridge Williams, 422 State Office Bldg., Denver.

Connecticut: *Basic Science.* New Haven, Oct. 8. Prerequisite to license examination. Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

Idaho: Boise, Oct. 4. Dir., Bureau of License, Mr. F. L. Cruikshank, Boise.

Michigan: Lansing, Oct. 11-13. Sec., Dr. Nelson McLaughlin, 1010 Maccabee Bldg., Detroit.

Minnesota: *Basic Science.* Minneapolis, Oct. 4-5. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

Montana: Helena, Oct. 4. Sec., Dr. S. A. Cooney, Power Block, Helena.

National Board of Medical Examiners: The examinations in Parts I and II will be held at all centers where there are five or more candidates available in a Class A medical school, Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

Nebraska: *Basic Science.* Lincoln, Oct. 4-5. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

New Hampshire: Concord, Sept. 8-9. Sec., Dr. Charles Duncan, Concord.

New Mexico: Santa Fe, Oct. 10-11. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

New York: Albany, Buffalo, New York and Syracuse, Sept. 19-22. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 State Education Bldg., Albany.

Oklahoma: Oklahoma City, Sept. 13-14. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, Sept. 6. Sec., Dr. O. Costa Mandry, Hospital Mimiya, Santurce, San Juan.

Wisconsin: *Reciprocity.* Milwaukee, Sept. 13. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Wyoming: Cheyenne, Oct. 3. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Minnesota June Report

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 21-23, 1932. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Thirty-two candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states. The following colleges were represented:

College PASSED	Year Grad	Per Cent
Northwestern University Medical School. (1930) 95.3,	(1932)	90.1
Rush Medical College	(1932)	90.2
Indiana University School of Medicine	(1932)	89.4
State University of Iowa College of Medicine	(1929)	94.3, (1930) 91.4, (1931) 89.4
Johns Hopkins University School of Medicine	(1932)	88.2
University of Michigan Medical School	(1929)	93.4
University of Minnesota Medical School	(1931)	91.6,* 92,* 92.5, 93.2, (1932) 86.2,* 89,* 89,* 89.1,* 89.4, 89.6,* 90.4,* 90.6, 91, 91.1,* 91.3, 91.5,* 91.6, 92.2, 92.3
Washington University School of Medicine	(1931)	88.3
University of Pennsylvania School of Medicine	(1929)	94.6
Marquette University School of Medicine	(1932)	88.5
University of Manitoba Faculty of Medicine	(1929)	91.5

College LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Illinois College of Medicine	(1928)	New York
Washington University School of Medicine	(1930)	Missouri
John A. Creighton Medical College	(1916)	Montana
Jefferson Medical College of Philadelphia	(1927)	Michigan
University of Tübingen Faculty of Medicine	(1927)	New York

* These applicants have received their M.B. degree and will receive their M.D. degree on completion of an internship.

MEDICAL SOCIOLOGY IN THE MEDICAL SCHOOL CURRICULUM

JAMES PETER WARBASSE, M.D.
Woods Hole, Mass.

Our medical schools assume that the student admitted for medical education is already possessed of an adequate general culture. The schools rapidly engross the student in medical learning and proceed to carry him along in a transport of enthusiasm toward the goal of medical practice. He is, as it were, sequestered for four years from the rest of life and absorbed in the monastic seclusion of medicine.

This study in itself provides exceptional cultural value. Every man who pursues the course in medicine offered by our modern medical schools is bound to absorb a culture which is inherent in the pursuit of scientific knowledge. But the dominant purpose in the study of medicine is the perfecting of the medical technician; and it is to this end that the student addresses his energies.

In this age of the supremacy of commercialism, the medical student, as his studies approach the time when he must go out into the world and make his way, has to think of commercializing his knowledge. He wants a good medical education because it will win for him good economic rewards. This is natural and wise. The doctor must think about making money, because it is with money that he is going to surround himself with the best equipment and provide a home and the best advantages for his family. It is a notorious fact that, when the mind is fixed upon a means to attain an end, the means becomes the bright object of the desires, and the end often remains obscured in the clouds of misty uncertainty.

The competitive struggle into which the young practitioner is thrown is in a business world. Concern need not be felt so much for those men of fine quality who hold their calling in such esteem that the rewards of medical practice come naturally as a tribute to their superiority. But concern must be felt for that great mass of doctors who proceed to make their way by sheer business methods.

On every side, not only in the cities but in the country districts too, is heard the lament of the commercialization of medicine. No advantage can come from its denial. It is rampant and conspicuous. It is not wholly the fault of medicine or of medical education; it is inherent in the nature of the society in which we live. It is an evil, perhaps, less in evidence in the medical profession than in any of the other useful occupations —but it is in evidence, to our discredit.

Medicine is both an art and a business. But the shining art of medicine suffers eclipse by the dull routine of business. The medical schools are, perhaps, taking for granted too much of the cultural background of the students and expecting too much from the cultural virtue of the study of medicine itself. This virtue, unless well fortified, has some rude shocks awaiting it when it goes out into the world of business competition.

Is it not possible that in the medical school the students get an overdose of technological training and become surfeited with undiluted medicine, when their studies might profitably be sweetened with a subject that correlates all departments and broadens the view from the narrow picture of disease to the larger scene of all society?

Might not the medical school improve the quality of its graduates by adding to their training, as medical technicians, a medical culture aimed to impress the students with an understanding of medicine as an art and give to the doctor a broad social conception of his relation to humanity?

In a recent address, President Angell of Yale University spoke of the study of medical sociology as so useful that "it may be that we shall have to create one or more new chairs to deal with these problems" in our schools of medicine.

A few of our colleges have a chair of medical history. Many assign some member of the faculty to give a course of lectures on this subject. European universities have carried this branch of teaching further than we. But the value of medical history resides in its sociological implications. The best is not gotten out of the subject by presenting its bare facts, as names, dates, events and places. That was the method once employed in teaching geography, botany and anatomy. These are now made living subjects and linked with the other departments of learning and life. Medical history can be treated in the same way.

The Long Island College of Medicine, in New York, has established a required course with this object in view. It is to begin in the term of 1932-1933. Medical history is used simply as a scaffolding on which to erect a structure of the social relations of medicine. On this are built medical philosophy, medical ethics and medical economics, all parts of the larger façade of medical sociology. The medical history of all time is interpreted in its relation to the problems of present-day life and to the facts of medical practice. What has gone before in the development of the science of medicine illuminates the philosophical, ethical, and economic aspects of the medicine of today.

It is aimed to give the students a broader understanding of their art. The course includes a discussion of the biologic basis of medicine; medicine among lower animals; animal treatment of animal ills; medical aid as a natural accompaniment of the survival of species; the primitive healer, the priest, the medicine man, and witchcraft; the Aesculapian legend; the help of the gods; astrology and alchemy; the truths hidden in tradition, quackery and pseudoscience; facts sleeping in the lap of fiction; scientific curiosity; the power of tradition; health and morals; curiosity; expediency and bedside manners; the difference between law and medicine; humoral physiology, the precursor of the hormones; the hazards of wishful thinking; the philosophy of medicine.

Paracelsus illustrates bombastic medicine; Servetus, the conflict between science and tradition; Vesalius, the price of prosperity; Leeuwenhoek, the joy of seeing things never before seen; Paré, the doctor himself as the healing agent; Priestly and Dalton, exact observation; John Hunter, the relationship of all sciences; Jenner, utilitarian discoveries and their obligation to pure science; Corvisart, prestige and honesty; Simpson, overcoming intolerant opposition; Semmelweis, Pasteur and Lister, the great benefactions; Koch, how to know a fact; Osler, the exemplification of medical culture. These subjects give some idea of the interpretive possibilities of this course.

Connected with the historical background of medicine are the salient affairs of the doctor's life today. These call for discussion of medicine as a social science; the sick cell, the sick man, the sick society; the doctor as philanthropist; quackery, secrets and patents disavowed; the rewards and compensations of medicine; the meaning of success.

Finally, the physician perfecting himself in order to attain the great satisfactions; the physician's duty to himself; medicine as an art, science, profession and business; the unity of doctors; the medical guild; the medical society; the doctor's contacts with the community—individual competition, group experts, state medicine, guild statism, consumers' cooperation—their advantages and disadvantages; what is happening to the medical profession in the absence of its own planning to meet the exigencies of a radically changing society; a plan of medical organization adapted to the needs of the doctors and the times; preserving the doctor as a free individual in a mechanized age.

These are hints of the possibilities of a course of instruction on medical sociology for medical students, based on the history of medicine. Such a course, interspersed in the midst of the strenuous grind of education, may mellow and mollify the acerbities of technical training and help the doctor to view his profession as an art. It is possible that such a course may prepare the physician to live in better harmony with his colleagues, to serve more efficiently the society in which he lives, to be a more effective doctor, and finally to find greater satisfactions in the practice of his profession.

Book Notices

Neoplasms of Domesticated Animals By William H Feldman, D V M, M S, Division of Experimental Surgery and Pathology, the Mayo Foundation, Rochester Minnesota With a foreword by Charles H Mayo, M D Mayo Clinic Monographs Cloth Price, $6 Pp 410 with 193 illustrations Philadelphia and London W B Saunders Company, 1932

The study of animal tumors has assumed great importance in recent years owing to the demonstration of the transmissibility of the malignant neoplasms occurring spontaneously in albino mice and rats Of late, the discovery of a peculiar sarcoma of the fowl has interested investigators on tumors because this growth is transmissible by cell-free filtrates This property has been used as a basis for far reaching but as yet unsubstantiated theories concerning the possibility of a parasitic origin of human growths However, this property of filtrability seems to be wholly confined to tumors of the fowl Interesting tumors in guinea-pigs and rabbits are also being studied Such investigation has led to renewed interest in the morphologic examination of the great variety of neoplasms frequently found in other domesticated animals, and it is now clear that practically all the tumors that occur in human beings may be found in animals Most of the information on the subject, with the exception of the well known volume by Woglom on experimental cancer, published in 1913, has been either in a foreign language or in veterinary journals not readily accessible to the physician This collection of nearly all that is known concerning natural history of animal tumors is therefore of great value The illustrations are reproductions of photographs of gross material and photomicrographs of the histologic details of the neoplasms Each chapter is followed by an ample and accurate bibliography, and there is a competent section on methods of preservation of pathologic material For those who are working with animal tumors it is an invaluable source book and should be in every pathologic laboratory

A Text-Book of Surgical Pathology By Charles F W Illingworth M D, F R C S, and Bruce M Dick Cloth Pp 677 with 290 illustrations London J & A Churchill 1932

The evaluation of this book offers certain difficulties If its purpose is to supply a purely practical and relatively elementary outline in surgical pathology, as indeed it would appear from the preface, its object is well attained, if it is to offer an insight into the more fundamental problems that face the surgeon—inflammation, wound healing, resistance, tissue dysfunction, the state of the circulation—the book is of little value Organ pathology is presented in twenty-six well written, well illustrated and properly balanced chapters As such it reflects the point of view of the surgeon as a mechanist and of the pathologist who seeks to confine his interests to that level Surgery today has advanced far beyond this simple concept, though there is little to indicate this in the text The little that is offered seems superficial and haphazard Thus the book opens with three pages on surgical shock, two on burns, nine on tuberculosis Then follow four on actinomycosis, four on gas gangrene (the heading is "aerogenic infection" obviously a misnomer) and nine of echinococcus disease The array is rather motley and of totally unequal value whether from the practical or from the scientific point of view It might reasonably be supposed that the subject of inflammation would deserve some consideration, but of this there is no mention Obviously the book has its limitations

Technique de l'ostéosynthese Étude de quelques procédés Par Robert Danis professeur de clinique chirurgicale à l Universite de Bruxelles Paper Price 55 francs Pp 161 with 149 illustrations Paris Masson & Cie 1932

This book is presented largely from the author's laboratory and clinical experience A number of rules to be followed in performing a successful operation on fractures are given and emphasis is placed on unnecessary freeing of the fragments Immobilization after operation is stressed, especially when a foreign body has been used A rather complicated but apparently useful operating table has been devised for various operations on the extremities and also for holding the patient in difficult positions for other operations A number of instruments are described for holding bone fragments and for inserting and tightening wire sutures The author is enthusiastic regarding the use of multiple wire sutures for the fixation of bone fragments He describes numerous plans for wiring the ends of fractured bones A few typical cases are reported, but infection, which developed about the wires in a number of these, necessitated their removal Occasionally bone infection occurred but the result eventually seemed to be good In badly comminuted fractures the author uses a special wire screen wrapped and reenforced with wire around the fragments The method of making and the use of an autogenous bone graft and bone screws for fixation are described The graft is cut from the crest of the tibia but is rarely used except in bridging a defect or in a severe pseudarthrosis Early use of the extremities is hastened by the support of a specially made celluloid splint laced up on one side so that it may be tightened as necessary The necessity for open operation on certain fractures difficult to reduce and maintain is well known, but the frequent use of multiple perforating wire sutures and a large amount of foreign material can scarcely be sanctioned In general, screws or even plates are less likely to infection and certainly far easier to remove Osteomyelitis resulting from perforating wire sutures is particularly difficult to cure, and the wire itself is often difficult to remove The book may be read for its original suggestions in the technic of application of wire sutures and screws

Strahlenbehandlung bei Hautkrankheiten· Licht, Radium, Röntgen- und Grenzstrahlen Ein Lehrbuch für Studierende und Ärzte Von Dr Franz Blumenthal, a o Professor an der Universität stellvertr Direktor der Universitats Hautklinik in Berlin und Dr Lothar Bohmer, Assistent der Hautklinik in Berlin Second edition Paper Price 15 marks Pp 274 with 128 illustrations Berlin S Karger, 1932

Since the first edition of this manual appeared in 1924 there have been many constructive developments in radiation therapy The biology and physics of light, radium, roentgen rays and grenz rays are discussed in a thoroughly scientific manner, with appropriate illustrations of the various modalities in modern usage The important subject of dosage, both qualitative and quantitative, is adequately covered In the biologic-clinical section the changes produced in the skin by irradiation are discussed in addition to the technic of treatment as applied to different dermatologic disorders in the light institute of the Berlin University skin clinic The authors are to be congratulated on having condensed a large amount of valuable material into a small volume that will be of great interest to dermatologists and radiation therapists

Tuberculose osseuse et ostéo-articulaire Par Etienne Sorrel chirurgien de l Hôpital Trousseau et Mme Sorrel Dejerine Fascicules I et II Cloth Price 380 francs Pp 514, with 640 illustrations Paris Masson & Cie, 1932

These atlases on bone and joint tuberculosis were written by Sorrel and his wife The books constitute a summary of lectures that have been given twice each year during Sorrel's long residence at the Maritime Hospital at Berck to French and foreign physicians Chapter I includes tuberculous osteitis as it occurs in the large and small long bones, and in the short and flat bones, chapter II includes or discusses tuberculous ostearthritis of the upper extremities, viz, the wrist, elbow and shoulder of the child and adult, chapter III, tuberculous ostearthritis of the lower extremities and the sacro-iliac joints, and chapter IV, tuberculous ostearthritis of the spinal column There is a discussion of Pott's disease as it occurs in the child and the adult and infection of the posterior portions of the vertebrae, viz, the posterior arch, spinous process, transverse process and vertebral articulations The author's views on the treatment of Pott's paraplegia are well known The illustrations include roentgenograms, line drawings and diagrams of operations These include the operative treatment of spina ventosa, resection of the wrist, elbow, shoulder and mediotarsal joint, astragalectomy, resection of the knee and the hip, the technic of extra-articular arthrodesis of the hip, the Albee spine operation, the osteoperiosteal graft and the Hibbs operation Especially noteworthy are the illustrations of amputations, astragalectomy and sequestrectomy by Frantz There are instructive diagrams of the pathologic anatomy of tuberculosis of the knee and hip The work of the publishers is good These books should be looked over, even if not read, by evey orthopedic surgeon and roentgenologist

Die Anamnese. Psychologie und Praxis der Krankenbefragung. Von Prof. Dr. Georg Grund, Direktor der Medizinischen Univ.-Poliklinik in Halle a. S. Boards. Price, 12 marks. Pp. 242. Leipzig: Johann Ambrosius Barth, 1932.

This book is much more than a simple manual of history taking. It is introduced by the author with the statement that the art of taking a medical history, which is more difficult to learn than most methods of investigation of the patient, has lost ground with the introduction of so many new methods of examination, and he makes a plea for recognition of its true worth and importance and for proper emphasis on it in both the teaching and the practice of medicine. The author attributes the common neglect of the teaching of history taking in part at least to the fact that there has never been an adequate compilation of current knowledge on this subject, and this book represents his attempt to fill what he regards as a real need. After an introduction which covers the general principles and psychology of history taking the book is divided into two main parts, the history being regarded from the standpoint of symptoms and from the standpoint of etiology. The general method followed is that of describing such symptoms as are related by or as may be elicited from the patient, and of pointing out the possible connection of the patient's story with pathologic changes. This method is used successfully, and the exposition is exhaustive, clear and concise. A similar method is used in the review of the history from the standpoint of etiology. There is a chapter on the elucidation of psychogenic factors in the etiology of the organic manifestations of disease, and in discussing symptoms as related by the patient attention is constantly called to the possibility of their psychic origin. The book would perhaps have been strengthened by a section devoted specifically to the neuroses, both on account of their importance in producing symptoms and on account of the importance of the history in making the diagnosis of neurosis. On the whole, the book is well worth while for any physician who wishes further to cultivate the art of history taking in himself or in his pupils, and it should serve a useful purpose in redirecting attention to what may be in some danger of becoming a lost art.

La Escuela Médica Peruana: Por los senderos de Unánue. Por Prof. C. E. Paz Soldan. Biblioteca del Centenario de Hipólito Unánue. Paper. Pp. 186. Lima: Le Reforma Médica, 1932.

This anniversay volume, a tribute to Hipólito Unánue, founder of the country's first medical school, deals with the past, present and future of medical education in Peru. The first section, which is of greatest interest, unfolds the panorama of the development of medical practice during the colonial era, and especially the establishment of hospitals as charitable institutions. The heroic efforts of Unánue at the beginning of the nineteenth century are vividly portrayed. Then follows a cursory description of the vicissitudes political, economic and educational, culminating in the merger with the University of San Marcos. The second section deals with the "convulsive" decade, 1919-1929, when the students were in revolt and all the activities of higher education were in abeyance. After discussing the causes of the recent débâcle the author takes up the problems of the future, expounding a neat and logical plan of organization and reglementation. To those interested in the educational developments "below the line," the book will prove a valuable guide.

Lectures on Psychiatry. By E. D. Wiersma, M.D., Professor of Psychiatry and Neurology, Groningen. Cloth. Price, 25/-. Pp. 610, with 143 illustrations. London: H. K. Lewis & Company, Ltd., 1932.

As the author states in his preface, the lectures on psychiatry are theoretical lectures. The individual mental diseases and their etiology, prognosis and therapeutics are touched on either not at all or only incidentally. The lectures are to a great extent studies in psychopathology and were delivered at the University at Groningen, where Dr. Wiersma occupied the chair of neurology and psychiatry for more than thirty years. Believing that neurology and psychiatry are two closely related subjects, the author is not in favor of having these subjects taught by different teachers. He fears that such a division of the two subjects may give a too one-sided development toward the neurologic or psychiatric side. With only a passing review of the teachings of Freud, Adler and Young, the organic basis of abnormal mental reactions is studied in extenso. In chapter I the intimate connection between the phenomena of consciousness and material processes is pointed out. In chapter IV a study of the relationship between bodily build of the races and constitution types to a given psychic structure is made. "A presumption is justified" that from the shape of the body a function appropriate to it may be predicted. Chapters V, VI, VII, VIII and IX are given to the study of consciousness, degrees and extent of consciousness and its determination. An excellent study of memory disturbances, disturbances in thinking and dementia is given in chapters XII, XIII, XIV and XV. In chapter XIX, under the caption of "Manifestations of the Will" a detailed psychologic interpretation of reflexes is made. An agreement is found between conscious manifestation of the will and reflexes as it is seen in the correspondence between reaction time and reflex time. Automatisms and instinctive and impulsive actions are elucidated. In the last chapter, apraxias, aphasias and dysarthrias are discussed as manifestations of volitional disturbances.

Contribution à l'étude du traitement des fractures ouvertes de jambe. Par le Dr. Louis Darfeuille. Paper. Pp. 170, with illustrations. Paris: Librairie Arnette, 1932.

The authors state that, according to the statistics, all methods have given variable results. Closed synthesis, although having a 1.7 per cent mortality and favorable results in 80 per cent of the cases, cannot be regarded as the treatment of choice in all cases of compound fractures. There is, however, no uniform or universal treatment of fracture of the lower leg. Of the various types of technic from which the surgeon may choose, he must be guided in the individual case by the degree of anatomic displacement and the time that has elapsed since the accident.

The History of Taste: An Account of the Revolutions of Art Criticism and Theory in Europe. By Frank P. Chambers. Cloth. Price, $4.25. Pp. 342, with 12 illustrations. New York: Columbia University Press, 1932.

The author consulted medieval writers for their views and opinions on architecture, sculpture and painting executed in their own time and then traced the changes during the Renaissance through the period of the romantic movement and the revivals of the last century. Apparently the views of mankind change greatly under various circumstances and among various peoples. The author is convinced that there is a kind of destiny in taste—a cycle as it were—which no man controls and in which some deeper historical significance may be sought. The volume is magnificently printed and beautifully illustrated and might well form a model for publishers of other semiscientific workers.

Fleckfieber und Nervensystem. Von Dr. Nikolai Hirschberg. Sonderausgabe von Heft 66 der „Abhandlungen aus der Neurologie, Psychiatrie, Psychologie und ihren Grenzgebieten." Paper. Price, 11.60 marks. Pp. 124. Berlin: S. Karger, 1932.

In typhus fever the nervous system is affected with remarkable regularity. Though it causes also a number of somatic disturbances, these are neither clinically nor pathologically so prominent and important as the nervous complications. It also gives rise to a number of curable, transient psychoses and therefore is remarkable also for the absence of sequelae which are so common after another infection of the central nervous system known as epidemic (lethargic) encephalitis. Rare and practically unknown in this country, typhus fever is prevalent in Europe. During the Great War it swept over Russia, Poland (epidemic of 1918-1919), some provinces of the former, Austria and the Balkan countries and the military camps of the warring nations. An enormous opportunity presented itself to clinicians and research workers to study the disease from various angles. Their vast experience has been faithfully recorded by Hirschberg, who devotes 13 pages to pathology and the rest of the book to the clinical features and the bibliography of 275 articles. The nerve lesions are covered minutely. The peripheral nerves, sympathetic nervous system, spinal cord and various parts of the brain are taken up separately. As there is hardly a portion of the central nervous system that is not involved in this disease, the monograph is a short but lucid review of the most interesting phases of neurology, including, for instance, the chapters on the extra-

Book Notices

Neoplasms of Domesticated Animals. By William H. Feldman, D.V.M., M.S., Division of Experimental Surgery and Pathology, the Mayo Foundation, Rochester, Minnesota. With a foreword by Charles H. Mayo, M.D. Mayo Clinic Monographs. Cloth. Price, $6. Pp. 410, with 193 illustrations. Philadelphia and London: W. B. Saunders Company, 1932.

The study of animal tumors has assumed great importance in recent years owing to the demonstration of the transmissibility of the malignant neoplasms occurring spontaneously in albino mice and rats. Of late, the discovery of a peculiar sarcoma of the fowl has interested investigators on tumors because this growth is transmissible by cell-free filtrates. This property has been used as a basis for far reaching but as yet unsubstantiated theories concerning the possibility of a parasitic origin of human growths. However, this property of filtrability seems to be wholly confined to tumors of the fowl. Interesting tumors in guinea-pigs and rabbits are also being studied. Such investigation has led to renewed interest in the morphologic examination of the great variety of neoplasms frequently found in other domesticated animals, and it is now clear that practically all the tumors that occur in human beings may be found in animals. Most of the information on the subject, with the exception of the well known volume by Woglom on experimental cancer, published in 1913, has been either in a foreign language or in veterinary journals not readily accessible to the physician. This collection of nearly all that is known concerning natural history of animal tumors is therefore of great value. The illustrations are reproductions of photographs of gross material and photomicrographs of the histologic details of the neoplasms. Each chapter is followed by an ample and accurate bibliography, and there is a competent section on methods of preservation of pathologic material. For those who are working with animal tumors it is an invaluable source book and should be in every pathologic laboratory.

A Text-Book of Surgical Pathology. By Charles F. W. Illingworth, M.D., F.R.C.S., and Bruce M. Dick. Cloth. Pp. 677, with 290 illustrations. London: J. & A. Churchill, 1932.

The evaluation of this book offers certain difficulties. If its purpose is to supply a purely practical and relatively elementary outline in surgical pathology, as indeed it would appear from the preface, its object is well attained; if it is to offer an insight into the more fundamental problems that face the surgeon—inflammation, wound healing, resistance, tissue dysfunction, the state of the circulation—the book is of little value. Organ pathology is presented in twenty-six well written, well illustrated and properly balanced chapters. As such it reflects the point of view of the surgeon as a mechanist and of the pathologist who seeks to confine his interests to that level. Surgery today has advanced far beyond this simple concept, though there is little to indicate this in the text. The little that is offered seems superficial and haphazard. Thus the book opens with three pages on surgical shock, two on burns, nine on tuberculosis. Then follow four on actinomycosis, four on gas gangrene (the heading is "aerogenic infection" obviously a misnomer) and nine of echinococcus disease. The array is rather motley and of totally unequal value whether from the practical or from the scientific point of view. It might reasonably be supposed that the subject of inflammation would deserve some consideration, but of this there is no mention. Obviously the book has its limitations.

Technique de l'ostéosynthèse: Étude de quelques procédés. Par Robert Danis, professeur de clinique chirurgicale à l'Université de Bruxelles. Paper. Price, 55 francs. Pp. 161, with 149 illustrations. Paris: Masson & Cie, 1932.

This book is presented largely from the author's laboratory and clinical experience. A number of rules to be followed in performing a successful operation on fractures are given and emphasis is placed on unnecessary freeing of the fragments. Immobilization after operation is stressed, especially when a foreign body has been used. A rather complicated but apparently useful operating table has been devised for various operations on the extremities and also for holding the patient in difficult positions for other operations. A number of instruments are described for holding bone fragments and for inserting and tightening wire sutures. The author is enthusiastic regarding the use of multiple wire sutures for the fixation of bone fragments. He describes numerous plans for wiring the ends of fractured bones. A few typical cases are reported, but infection, which developed about the wires in a number of these, necessitated their removal. Occasionally bone infection occurred but the result eventually seemed to be good. In badly comminuted fractures the author uses a special wire screen wrapped and reenforced with wire around the fragments. The method of making and the use of an autogenous bone graft and bone screws for fixation are described. The graft is cut from the crest of the tibia but is rarely used except in bridging a defect or in a severe pseudarthrosis. Early use of the extremities is hastened by the support of a specially made celluloid splint laced up on one side so that it may be tightened as necessary. The necessity for open operation on certain fractures difficult to reduce and maintain is well known, but the frequent use of multiple perforating wire sutures and a large amount of foreign material can scarcely be sanctioned. In general, screws or even plates are less likely to infection and certainly far easier to remove. Osteomyelitis resulting from perforating wire sutures is particularly difficult to cure, and the wire itself is often difficult to remove. The book may be read for its original suggestions in the technic of application of wire sutures and screws.

Strahlenbehandlung bei Hautkrankheiten: Licht, Radium, Röntgen- und Grenzstrahlen. Ein Lehrbuch für Studierende und Ärzte. Von Dr. Franz Blumenthal, a. o. Professor an der Universität, stellvertr. Direktor der Universitäts-Hautklinik in Berlin, und Dr. Lothar Böhmer, Assistent der Hautklinik in Berlin. Second edition. Paper. Price 15 marks. Pp. 274, with 128 illustrations. Berlin: S. Karger, 1932.

Since the first edition of this manual appeared in 1924 there have been many constructive developments in radiation therapy. The biology and physics of light, radium, roentgen rays and grenz rays are discussed in a thoroughly scientific manner, with appropriate illustrations of the various modalities in modern usage. The important subject of dosage, both qualitative and quantitative, is adequately covered. In the biologic-clinical section the changes produced in the skin by irradiation are discussed in addition to the technic of treatment as applied to different dermatologic disorders in the light institute of the Berlin University skin clinic. The authors are to be congratulated on having condensed a large amount of valuable material into a small volume that will be of great interest to dermatologists and radiation therapists.

Tuberculose osseuse et ostéo-articulaire. Par Etienne Sorrel, chirurgien de l'Hôpital Trousseau, et Mme. Sorrel-Dejerine. Fascicules I et II. Cloth. Price, 380 francs. Pp. 514, with 640 illustrations. Paris: Masson & Cie, 1932.

These atlases on bone and joint tuberculosis were written by Sorrel and his wife. The books constitute a summary of lectures that have been given twice each year during Sorrel's long residence at the Maritime Hospital at Berck to French and foreign physicians. Chapter I includes tuberculous osteitis as it occurs in the large and small long bones, and in the short and flat bones; chapter II includes or discusses tuberculous ostearthritis of the upper extremities; viz., the wrist, elbow and shoulder of the child and adult; chapter III, tuberculous ostearthritis of the lower extremities and the sacro-iliac joints, and chapter IV, tuberculous ostearthritis of the spinal column. There is a discussion of Pott's disease as it occurs in the child and the adult and infection of the posterior portions of the vertebrae; viz., the posterior arch, spinous process, transverse process and vertebral articulations. The author's views on the treatment of Pott's paraplegia are well known. The illustrations include roentgenograms, line drawings and diagrams of operations. These include the operative treatment of spina ventosa, resection of the wrist, elbow, shoulder and mediotarsal joint, astragalectomy, resection of the knee and the hip, the technic of extra-articular arthrodesis of the hip, the Albee spine operation, the osteoperiosteal graft and the Hibbs operation. Especially noteworthy are the illustrations of amputations, astragalectomy and sequestrectomy by Frantz. There are instructive diagrams of the pathologic anatomy of tuberculosis of the knee and hip. The work of the publishers is good. These books should be looked over, even if not read, by evey orthopedic surgeon and roentgenologist.

Die Anamnese. Psychologie und Praxis der Krankenbefragung. Von Prof. Dr. Georg Grund, Direktor der Medizinischen Univ.-Poliklinik in Halle a. S. Boards. Price, 12 marks. Pp. 242. Leipzig: Johann Ambrosius Barth, 1932.

This book is much more than a simple manual of history taking. It is introduced by the author with the statement that the art of taking a medical history, which is more difficult to learn than most methods of investigation of the patient, has lost ground with the introduction of so many new methods of examination, and he makes a plea for recognition of its true worth and importance and for proper emphasis on it in both the teaching and the practice of medicine. The author attributes the common neglect of the teaching of history taking in part at least to the fact that there has never been an adequate compilation of current knowledge on this subject, and this book represents his attempt to fill what he regards as a real need. After an introduction which covers the general principles and psychology of history taking the book is divided into two main parts, the history being regarded from the standpoint of symptoms and from the standpoint of etiology. The general method followed is that of describing such symptoms as are related by or as may be elicited from the patient, and of pointing out the possible connection of the patient's story with pathologic changes. This method is used successfully, and the exposition is exhaustive, clear and concise. A similar method is used in the review of the history from the standpoint of etiology. There is a chapter on the elucidation of psychogenic factors in the etiology of the organic manifestations of disease, and in discussing symptoms as related by the patient attention is constantly called to the possibility of their psychic origin. The book would perhaps have been strengthened by a section devoted specifically to the neuroses, both on account of their importance in producing symptoms and on account of the importance of the history in making the diagnosis of neurosis. On the whole, the book is well worth while for any physician who wishes further to cultivate the art of history taking in himself or in his pupils, and it should serve a useful purpose in redirecting attention to what may be in some danger of becoming a lost art.

La Escuela Médica Peruana: Por los senderos de Unánue. Por Prof. C. E. Paz Soldan. Biblioteca del Centenario de Hipólito Unánue. Paper. Pp. 186. Lima: Le Reforma Médica, 1932.

This anniversay volume, a tribute to Hipólito Unánue, founder of the country's first medical school, deals with the past, present and future of medical education in Peru. The first section, which is of greatest interest, unfolds the panorama of the development of medical practice during the colonial era, and especially the establishment of hospitals as charitable institutions. The heroic efforts of Unánue at the beginning of the nineteenth century are vividly portrayed. Then follows a cursory description of the vicissitudes political, economic and educational, culminating in the merger with the University of San Marcos. The second section deals with the "convulsive" decade, 1919-1929, when the students were in revolt and all the activities of higher education were in abeyance. After discussing the causes of the recent débâcle the author takes up the problems of the future, expounding a neat and logical plan of organization and reglementation. To those interested in the educational developments "below the line," the book will prove a valuable guide.

Lectures on Psychiatry. By E. D. Wiersma, M.D., Professor of Psychiatry and Neurology, Groningen. Cloth. Price, 25/-. Pp. 610, with 143 illustrations. London: H. K. Lewis & Company, Ltd., 1932.

As the author states in his preface, the lectures on psychiatry are theoretical lectures. The individual mental diseases and their etiology, prognosis and therapeutics are touched on either not at all or only incidentally. The lectures are to a great extent studies in psychopathology and were delivered at the University at Groningen, where Dr. Wiersma occupied the chair of neurology and psychiatry for more than thirty years. Believing that neurology and psychiatry are two closely related subjects, the author is not in favor of having these subjects taught by different teachers. He fears that such a division of the two subjects may give a too one-sided development toward the neurologic or psychiatric side. With only a passing review of the teachings of Freud, Adler and Young, the organic basis of abnormal mental reactions is studied in extenso. In chapter I the intimate connection between the phenomena of consciousness and material processes is pointed out. In chapter IV a study of the relationship between bodily build of the races and constitution types to a given psychic structure is made. "A presumption is justified" that from the shape of the body a function appropriate to it may be predicted. Chapters V, VI, VII, VIII and IX are given to the study of consciousness, degrees and extent of consciousness and its determination. An excellent study of memory disturbances, disturbances in thinking and dementia is given in chapters XII, XIII, XIV and XV. In chapter XIX, under the caption of "Manifestations of the Will" a detailed psychologic interpretation of reflexes is made. An agreement is found between conscious manifestation of the will and reflexes as it is seen in the correspondence between reaction time and reflex time. Automatisms and instinctive and impulsive actions are elucidated. In the last chapter, apraxias, aphasias and dysarthrias are discussed as manifestations of volitional disturbances.

Contribution à l'étude du traitement des fractures ouvertes de jambe. Par le Dr. Louis Darfeuille. Paper. Pp. 170, with illustrations. Paris: Librairie Arnette, 1932.

The authors state that, according to the statistics, all methods have given variable results. Closed synthesis, although having a 1.7 per cent mortality and favorable results in 80 per cent of the cases, cannot be regarded as the treatment of choice in all cases of compound fractures. There is, however, no uniform or universal treatment of fracture of the lower leg. Of the various types of technic from which the surgeon may choose, he must be guided in the individual case by the degree of anatomic displacement and the time that has elapsed since the accident.

The History of Taste: An Account of the Revolutions of Art Criticism and Theory in Europe. By Frank P. Chambers. Cloth. Price, $4.25. Pp. 342, with 12 illustrations. New York: Columbia University Press, 1932.

The author consulted medieval writers for their views and opinions on architecture, sculpture and painting executed in their own time and then traced the changes during the Renaissance through the period of the romantic movement and the revivals of the last century. Apparently the views of mankind change greatly under various circumstances and among various peoples. The author is convinced that there is a kind of destiny in taste—a cycle as it were—which no man controls and in which some deeper historical significance may be sought. The volume is magnificently printed and beautifully illustrated and might well form a model for publishers of other semiscientific workers.

Fleckfieber und Nervensystem. Von Dr. Nikolai Hirschberg. Sonderausgabe von Heft 66 der „Abhandlungen aus der Neurologie, Psychiatrie, Psychologie und ihren Grenzgebieten." Paper. Price, 11.60 marks. Pp. 124. Berlin: S. Karger, 1932.

In typhus fever the nervous system is affected with remarkable regularity. Though it causes also a number of somatic disturbances, these are neither clinically nor pathologically so prominent and important as the nervous complications. It also gives rise to a number of curable, transient psychoses and therefore is remarkable also for the absence of sequelae which are so common after another infection of the central nervous system known as epidemic (lethargic) encephalitis. Rare and practically unknown in this country, typhus fever is prevalent in Europe. During the Great War it swept over Russia, Poland (epidemic of 1918-1919), some provinces of the former, Austria and the Balkan countries and the military camps of the warring nations. An enormous opportunity presented itself to clinicians and research workers to study the disease from various angles. Their vast experience has been faithfully recorded by Hirschberg, who devotes 13 pages to pathology and the rest of the book to the clinical features and the bibliography of 275 articles. The nerve lesions are covered minutely. The peripheral nerves, sympathetic nervous system, spinal cord and various parts of the brain are taken up separately. As there is hardly a portion of the central nervous system that is not involved in this disease, the monograph is a short but lucid review of the most interesting phases of neurology, including, for instance, the chapters on the extra-pyramidal system and the rôle of the sympathetic system in the causation of various cerebral disorders. It is of additional value because of the rich personal experience of the author and the liberal references to the Russian literature, valuable but hardly accessible.

La créatininémie. Par Dr. Maurice Dérot. Paper. Pp. 238. Paris: Librairie Médicale Marcel Vigné, 1932.

Dérot reports studies on the creatinine concentration of serum on patients and experimental animals. He used Folin's method and found creatinine elevated in acute and chronic nephritis and other disease associated with renal lesions. In dogs and rabbits, elevated serum creatinine was brought about by nephritis produced by bismuth, mercuric chloride, and diphtheria toxin, as well as bilateral ligation of the ureters or bilateral nephrectomy. He feels that creatinine determinations are of definite help in nephritis but should be used in conjunction with urea determinations. The book contains little new. The author mentions, but does not answer, the objections to the Jaffé reaction and assumes that the error is of no clinical importance.

The Mongol in Our Midst: A Study of Man and His Three Faces. By F. G. Crookshank, M.D., F.R.C.P. Third edition. Cloth. Price, 21s Pp. 539, with illustrations. London: Kegan Paul, Trench, Trubner & Company, Ltd., 1931.

This is the third edition of a volume which attracted wide attention when it first became available. Dr. Crookshank is not so much concerned with the imbecile mongoloid as with nonracial mongolism. He comes to no definite conclusion as to the significance of the mongol but he does say that if we could finally discover the real cause for the presence of mongolism in our midst we should know not merely what God and man are but how they both came to be. In reaching this conclusion he traces all the views of evolution of man that have held public interest since the darwinian view first startled the world.

Miscellany

TAXING ANTIVIVISECTION BEQUESTS

Following is an opinion of the United States Board of Tax Appeals in the case of the Pennsylvania Company for Insurances on Lives and Granting of Annuities versus the Commissioner of Internal Revenue, promulgated, April 18:

The respondent has proposed an additional assessment of estate tax in the amount of $17,657.56. The only issue is whether a bequest to the American Anti-Vivisection Society of Philadelphia is exempt from estate tax under the provisions of section 303 (a) (3) of the Revenue Act of 1924. The parties have entered into certain stipulations which the board accepts and incorporates in this report by reference.

So far as pertinent to this proceeding, section 303 (a) (3), which governs the issue here, is as follows:

> For the purpose of the tax the value of the net estate shall be *determined*—
>
> (a) In the case of a resident, by deducting from the value of the gross estate . . .
>
> (3) The amount of all bequests . . . to or for the use of any corporation organized and operated exclusively for . . . the prevention of cruelty to . . . animals . . ."—*Revenue Act of 1924.*

The *Commissioner's regulation for the administration of the* above provision in Regulations 68 (1924) is as follows:

> *Religious, charitable, scientific, and educational corporations.* A corporation or association to which such a bequest was made must meet three tests: (1) It must be organized and operated for one or more of the specified purposes; (2) it must be organized and operated exclusively for such purpose or purposes; and (3) no part of its net earnings shall insure to the benefit of private stockholders or individuals.—*Regulations 68 (1924 Ed.)*

The American Anti-Vivisection Society is a Pennsylvania corporation chartered May 1, 1883. Its purposes as set out in the original character were to restrict the practice of vivisection within proper bounds and to prevent the injudicious and needless infliction of suffering on animals under the pretense of scientific and medical research. On May 23, 1885, the charter was amended by changing the name of the corporation to American Society for the Restriction of Vivisection. On May 15, 1889, it was again amended to declare the purpose of the society to be "the total abolition of all vivisectional experiments on animals and other experiments of a painful nature" and the name was changed to American Anti-Vivisection Society.

The American Anti-Vivisection Society engages in various activities to effect the purposes for which it was organized. It gives rent free use of certain rooms to the Animal Rescue League and contributes to the expense of that organization, which takes off the streets of Philadelphia animals that in some cases might find their way into vivisectional laboratories. It provides for free lectures and uses billboard advertising space in its propaganda work against vivisection. It publishes a monthly magazine in which there are always some articles on the cruelty of vivisectional experiments. It has kept a man near the laboratories of the University of Pennsylvania to learn whether stolen dogs were delivered to the kennels of that institution and has sent notices to owners advising them to look out not only in the city pound but in the vivisectional laboratory for missing animals.

Vivisectional experiments are conducted in various research laboratories maintained by publicly supported and/or privately endowed medical schools and endowed foundations throughout the world. The Rockefeller Institution, a research foundation engaged in investigating the causes and cures of human diseases, especially cancer, maintains its own vivisection laboratory. Similar work is done in the medical and biological departments of many of the great universities, such as Johns Hopkins of Baltimore, Pennsylvania of Philadelphia and many others throughout the country.

Under the laws of most of our states and of many countries, cruelty to animals is an indictable offense, subject on conviction to heavy penalties. Societies to assist the authorities in the enforcement of such laws have been established in many jurisdictions. Such organizations have done much to relieve animals from needless suffering inflicted by careless or cruel owners and others. Recognizing the social value of such work, Congress included the exemption provision here relied on in the Revenue Act of 1924. It has been held, however, that legislation to prevent cruelty to animals is not based on consideration for animals or recognition of man's obligation to treat them decently, but on the theory that such cruelty is "an offense against public morals which the commission of cruel and barbarous acts tends to corrupt." *Commonwealth* v. *Turner,* 145 Mass. 296; 14 N. E. 130.

The courts have had many occasions to discuss and define cruelty, but our research fails to disclose any material variation from Webster's definition, that it is "disposition to give unnecessary pain or suffering to others; inhumanity, barbarity; . . . inhuman treatment; act of wilfully causing unnecessary pain." In conformity with this definition the courts have very generally held that cruelty in a legal sense is wilful, wanton and unnecessary infliction of pain. It is cruel to let loose a captive fox to be harried by hounds for gratification of human spectators, *Commonwealth* v. *Turner, supra,* or to kill or maim live pigeons that have been kept in captivity. *Waters* v. *People,* 23 Colo. 33; 46 Pac. 112. Cf. *State* v. *Porter,* 112 N. C. 887; 16S. E. 915. On the other hand, the same courts have held that the statutes against cruelty to animals should not be construed to prevent killing game in its wild state.

The domestic use of animals requires many painful operations, none of which have ever been forbidden by legislation or denounced by the courts as cruel acts. Dehorning domestic animals inflicts great suffering; but it is not only tolerated but is very generally practiced and, in Pennsylvania, it has the sanction of the legislature and the courts. Act. Pa. 1895, from 25 P. L. 286. Breaking, branding, marking, punishing, working, docking, castrating, spaying and caponizing are ordinary incidents in keeping animals to supply food or render service to man. Such operations must cause intense pain and suffering and certainly are not for the benefit of the animals but they have never been legally outlawed or even stigmatized as cruel, inhuman or barbarous by legislation or judicial decisions. Usage and law tolerate, permit and even encourage, and in some instances require such operations with the single limitation, not always too strictly observed, that they must be done with a minimum of suffering for the helpless creatures dedicated by age old custom to man's necessities.

Within the meaning of the law every living creature, except man, is an animal and all are either the friends or foes of human beings. Throughout all history it has been necessary and therefor laudable to exterminate the animal enemies of humanity. Snares, traps, arrows, guns, poison, fire, parasites and countless other lethal agents and deadly devices have been used to protect man, his health and property from the menaces and depredations of noxious beasts, birds, reptiles and insects. For this purpose killers have been subsidized by the nations and the states and all the agencies of science have been enlisted. Municipalities vote bounties to encourage this warfare. Even the Congress appropriates the revenues for the extirpation of weevils, grasshoppers, fruit flies and other pests that threaten the prosperity and well being of the people. Without question this never ending conflict between man and the so-called lower forms of life has caused dreadful pain and suffering to countless sentient beings; but man's necessity knows no higher law than self preservation and must be served.

The prevention and cure of human diseases are only other phases of man's struggle to survive and are no less necessary than the conquest of visible and powerful enemies. From the dawn of history until within the very recent past, mankind has been ravaged by epidemics of contagious and infectious plagues. The migrating pests of the early and middle ages, Asiatic cholera, yellow fever, syphilis and smallpox destroyed millions of lives and impoverished whole countries of happiness and prosperity before they were vanquished by dauntless men who gave their time, talent and, in many instances, their own lives to human service in the laboratories of the scientific world. Vivisection has long been considered a vitally essential investigative method in physiology, pathology, biology and curative medicine and surgery. Cerebrospinal meningitis, long regarded as practically incurable, has been conquered by an antitoxin discovered in the vivisectional laboratories of the Rockefeller Foundation and has reduced the mortality of that scourge from more than 75 to less than 25 per cent. In the experimentation which developed that antitoxin, 100 guinea-pigs and 25 monkeys were sacrified to human necessity, but for each monkey or pig so used there are today scores of sound human beings who have been restored to health and the service of their families and society by the necessary use of lower animals in the interest of mankind.

Following the discovery of America and for more than 400 years, syphilis and its sequalae in many forms ravaged the nations of the western world. This scourge, so contagious and insidious that it baffled medical science and caused untold suffering and shame to innocent and guilty alike, has been conquered within our own generation by the scientist Ehrlich, who discovered his famous specific after seven years of vivisectional experimentation and the trial and rejection of more than 700 alleged remedies. Space forbids more than the mention of similar results in the prevention and treatment of diphtheria, hydrophobia, tuberculosis, typhoid, and many other diseases that have yielded, or are yielding, to the attacks of science. The results already attained promise much for the future. Cancer, said to kill one person of every eight who dies after the age of 40, remains unconquered. If its germ is ever identified, and its cure determined, the vivisectional laboratories must, in all probability, render that service to humanity.

Experimentation on living animals in the interest of medical progress has been endorsed with singular unanimity by learned societies and associations devoted to the curative arts and the advancement of science. On Aug. 12, 1913, the International Medical Congress, composed of distinguished members of the profession from every civilized country in the world, without a dissenting vote approved the following resolution:

> That this Congress records its conviction that experiments on living animals have proved of the utmost service to medicine and are indispensable to the future progress. That, accordingly, while strongly deprecating the infliction of unnecessary pain, it is the opinion, alike in the interest of man and animals, that it is not desirable to restrict competent persons in the performance of such experiments.

To the like effect are resolutions adopted by the British Medical Association in 1892, and the American Medical Association and the American Association for the Advancement of Science in 1908. These resolutions represent the collective opinion of the medical profession of all countries. On the other hand, extensive research has failed to disclose a single adverse resolution of any scientific body.

For more than two generations, vivisectional experiments have had the unqualified endorsement of the most distinguished investigators. In a letter written April 14, 1881, Charles Darwin said:

> On the other hand I know that physiology can make no progress if experiments on living animals are suppressed and I have an intimate conviction that to retard the progress of physiology is to commit a crime against humanity. . . . Unless one is absolutely ignorant of all that science has done for humanity, one must be convinced that physiology is destined to render incalculable benefits to man and even to animals. See the results obtained by M. Pasteur's work on the germ of contagious diseases; will not animals be the first to profit thereby? How many lives have been saved, how much suffering spared by the discovery of parasitic worms following the experiments made by Virchow and others on living animals!

As far back as 1863, Claude Bernard, one of the greatest scientists of that day, wrote:

> You ask me what are the principal discoveries due to vivisection. . . . All the knowledge possessed by experimental physiology can be quoted in that connection; there is not a single fact which is not the direct and necessary consequence of vivisection. From Galen, who, by cutting the laryngeal nerves, learnt their use for respiration and the voice to Harvey, who discovered circulation; Pecquet and Aselli, the lymphatic vessels; Bell and Magendie the nervous function, and all that has been learned since the extension of that method of vivisection, which is the only experimental method; in biology, all that is known on digestion, circulation, the liver, the lymphatic system, the bones, development —all absolutely is the result of vivisection, alone or combined with other means of study.

Apparently it is the contention of the petitioner here that Virchow, Bernard, Darwin, Pasteur and the host of less distinguished servants of humanity who have contributed so much to the well being of mankind by their great discoveries, instead of praise for their beneficial achievements, merit censure for the use of living animals. We cannot adopt such a view. To abolish vivisection would greatly retard the progress of preventive and curative medicine. It would stop the use of animals for the development of all the serums now used to immunize against disease or to relieve and cure after infection. The health and strength of its people are a nation's greatest asset. To adopt the views of antivivisectionists would deprive medicine of one of its most effective agencies of investigation and force a return to empirical and observational methods which, however valuable, fall far short of the demands of humanity. To grant the prayers of the petitioner here would require the government to contribute to the cost of a movement inimical to the safety and health of the people, a result that we think was not contemplated by Congress.

In our opinion vivisection does not come within the legal meaning of cruelty to animals. It is a method of research necessary to human welfare. Such pain or suffering as may result therefrom is not wilfully or wantonly inflicted. We conclude, therefore, that the American Anti-Vivisection Society is not operated exclusively to prevent curelty to animals and so is not entitled to the benefits of section 303 (a) (3) of the Revenue Act of 1924.

Reviewed by the Board.

Decision will be entered for the respondent.

STERNHAGEN and MURDOCK, concurring: When the Board concludes, as it properly and correctly does, that vivisection is not necessarily cruelty to animals within the meaning of the statute, the ground for the decision is complete. It is, in our opinion, unnecessary and probably improper to consider the general wisdom of vivisection, and we therefore refrain from participation in the discussion of that question.

SMITH, dissenting: In my opinion the deduction of the bequest to the Anti-Vivisection Society of America is authorized by the statute. Section 303 (a) (3) of the Revenue Act of 1924 provides for the deduction from the gross estate of "The amount of all bequests . . . to or for the use of any corporation organized and operated exclusively for religious, charitable, scientific, literary, or educational purposes, including the encouragement of art and the prevention of cruelty to children or animals. . . ." The statute is concerned only with the "purpose" for which the corporation was organized and operated. The discussion in the majority opinion as to whether the practice of vivisection is in a legal sense a cruelty to animals or beneficent to mankind goes beyond the necessities of the case. The evidence pertaining to the organization and operation of the American Anti-Vivisection Society seems to me to indicate clearly that its purposes and practices were directed generally toward prevention of cruelty to animals. I think that the bequest is deductible.

Medicolegal

Quo Warranto Proceedings to Test Right to Practice

(State ex rel. Biggs v. Higbee (Ala.), 138 So. 819)

Under the laws of Alabama, quo warranto proceedings may be brought in the name of the state against a person practicing any profession requiring a license or certificate or other legal authorization, calling on him to show by what right or warrant he is practicing. If he fails to produce a license, certificate or other authorization, he may be barred from further practice (section 9932, Alabama Code, 1928). Such proceedings were instituted against the respondent, Higbee, to prevent his treating or offering to treat diseases of human beings without first having obtained a certificate of qualification from the state board of medical examiners. Evidence showed that he had treated patients by massage, electricity, heat and a salve, and the state requested the court to charge the jury to find the respondent guilty if it believed the evidence. This the court declined to do, and an exception was noted. Verdict and judgment were given in the respondent's favor. If Higbee had been prosecuted criminally, such a verdict and judgment would have ended the case, for he could not have been tried again for the same offense. In quo warranto proceedings, however, an appeal is possible, and the state appealed to the Supreme Court of Alabama.

The statute requiring examination of persons undertaking to treat diseases of human beings, said the Supreme Court, covers every form of treatment. It is conceded that the respondent is no doctor; that he is not a chiropractor and that he condemns the practice of chiropractic; that he is no surgeon; that he is no osteopath. The statute, however, does not include only the classes named; it reaches out and includes persons who would treat the ills of human beings by any system whatsoever. It includes those who treat diseases by the system known as mechanotherapy, sometimes called the movement cure. The statute is all inclusive where any system or cure is offered to relieve human diseases. Conceding even that the state was not entitled to have the trial court direct a verdict in its favor, nevertheless the verdict of the jury was contrary to the great weight of the evidence, and the trial court, on motion of the state, should have set the verdict aside. The judgment of the trial court was reversed and the cause remanded for a new trial.

Workmen's Compensation Acts: Refusal of Widow to Permit Autopsy No Bar to Compensation.—The Tennessee workmen's compensation act (Public Acts, 1919, chapter 123, section 25) provides that when the cause of death is obscure or disputed, any interested party may require an autopsy at his own expense. This confers on the employer a right to have an autopsy performed, which he may enforce by proper proceedings and order of the court before which a petition for compensation is filed. There is, however, says the Supreme Court of Tennessee, no provision in the statute making a refusal on the part of the widow to permit an autopsy a bar to her recovery of compensation.—*Lenoir Car Works v. Hill (Tenn.), 44 S. W. 321.*

Wills: Lay Testimony as to Testator's Mental Capacity.—The testimony of laymen as to the mental capacity of a testator and their opinions concerning it are admissible in evidence if the witnesses were well acquainted with the testator and had opportunities to observe him and to form an opinion. If the witnesses do not state facts, or if the facts related and the circumstances proved by them do not constitute evidence of mental incapacity, the opinions of such witnesses do not furnish evidence sufficient to justify the submission of the case to the jury. The fact that the testator was an epileptic is not sufficient to establish mental unsoundness, disqualifying him from making a will, in the absence of expert testimony describing its extent and its effect on his mind and showing that the disease deprived him of his mental capacity to execute a will.—*Bodine v. Bodine (Ky.), 44 S. W. (2d) 840.*

Evidence: Use of Medical Books in Cross-Examining Medical Experts.—The authorities, according to the Supreme Court of Oregon, are apparently hopelessly at odds as to how far counsel, in cross-examining an expert, may use the works of authors recognized as standard authorities by the witness and by the profession to which he belongs. The weight of authority is that it is error for counsel to read to his medical witness in his direct examination extracts from a standard medical work, and then to ask him whether what was read corresponds with the witness' own judgment. On cross-examination, however, when a medical expert is shown the works of a recognized authority and states that he is familiar with them and considers them standard authorities, there is no good reason why he should not be asked if he concurs in the opinion of the author. It would create an anomalous situation to permit the witness by his own oath to qualify himself as an expert on the matter on which he testifies and then to refuse to allow opposing counsel to test his qualifications and truthfulness by the use of authorities that the witness himself says he is familiar with and are standard and so recognized by the members of his profession.—*Kern v. Pullen (Ore.), 6 P. (2d) 224.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Montreal, Sept. 19-23. Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Neb., Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, French Lick, Indiana, Sept. 12-14. Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American College of Surgeons, St. Louis, October 17-21. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Congress of Physical Therapy, New York, Sept. 6-10. Dr. F. B. Balmer, 185 North Wabash Avenue, Chicago, Secretary.

American Hospital Association, Detroit, Sept. 12-16. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Detroit, September 28-30. Dr. C. C. Vinton, 241-02 S. Conduit Blvd., Rosedale, N. Y., Secretary.

American Roentgen Ray Society, Detroit, September 27-30. Dr. Eugene P. Pendergrass, 3400 Spruce Street, Philadelphia, Secretary.

Associated Anesthetists of the United States and Canada, New York, October 17-21. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association of Military Surgeons of the United States, Hartford, Conn., October 20-22. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Memphis, Tenn., September 15-17. Dr. E. D. Plass, University Hospital, Iowa City, Secretary.

Colorado State Medical Society, Estes Park, Sept. 8-10. Mr. Harvey T. Sethman, 227 16th Street, Denver, Executive Secretary.

Delaware, Medical Society of, Lewes, September 27-28. Dr. W. O. La Motte, 604 Medical Arts Building, Wilmington, Secretary.

Idaho State Medical Association, Pocatello, Sept. 16-17. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, Michigan City, September 27-29. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Louisville, October 3-6. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Kalamazoo, Sept. 13-15. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Nevada State Medical Association, Reno, Sept. 23-24. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.

Oregon State Medical Society, Klamath Falls, Sept. 22-24. Dr. Albert W. Holman, 410 Taylor Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, October 3-6. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Utah State Medical Association, Ogden, Sept. 15-17. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, October 6-7. Dr. William G. Ricker, 31 Main Street, St. Johnsbury, Secretary.

Washington State Medical Association, Tacoma, Sept. 12-14. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-16. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

101: 1-212 (June) 1932

Changes in Blood Associated with Fever Induced by Killed Bacillus Coli. M. G. Banus and E. Ginsburg, Boston.—p. 106.

Studies in Physiology of Vitamins: XVIII. Measurements of Vitamin B Requirement in Several Species of Animals. G. R. Cowgill, with Collaboration of H. J. Deuel, Jr., A. H. Smith, B. H. Klotz and H. H. Beard, New Haven, Conn.—p. 115.

Direct Intra-Arterial Blood Pressure Readings in Man. W. Dameshek and J. Loman, Boston.—p. 140.

Mode of Action of Adrenin and Quantitation of Adrenin by Biologic Methods. A. Rosenblueth, Boston.—p. 149.

Glucose Tolerance in Phlorhizinized Dog as Affected by Renal Vessel Ligation and Insulin. L. A. Goldstein, A. J. Tatelbaum, S. Ehre and J. R. Murlin, Rochester, N. Y.—p. 166.

Studies on Possibility of Gluconeogenesis from Fat: I. Response of Phloridzinized Dog to Insulin. Estelle E. Hawley, Rochester, N. Y. —p. 185.

Physiologic Effects of High Frequency Current: II. Further Studies on Respiratory Metabolism of Anesthetized Dogs. E. S. Nasset, Rochester, N. Y.—p. 194.

*Id.: III. Carbon Dioxide and Oxygen Content and Capacity and Concentration of Blood of Anesthetized Dogs. E. S. Nasset, Rochester, N. Y.—p. 203.

Physiologic Effects of High Frequency Current.—Nasset presents experimental data showing that, in hyperthermia produced by high frequency electric current, the blood was concentrated 40 per cent or more. Below a body temperature of 41 C. (105.8 F.) the hemoglobin saturation of the venous blood was increased; above this temperature it was diminished. The loss of water from the blood stream was accompanied, and probably partially compensated for, by a large storage of corpuscles in the spleen. The carbon dioxide content of venous blood was reduced as much as 30 per cent. The alkali reserve, as measured by carbon dioxide capacity, was decreased but to a lesser extent than the carbon dioxide content. It is suggested that this disturbance in the acid base relations of the blood is a consequence of three factors; namely, hyperthermia, hyperventilation and a greatly accelerated metabolic rate.

American Journal of Public Health, New York

22: 579-689 (June) 1932

Physical Impairment Among One Thousand Negro Workers. F. P. *Allen, Cincinnati.—p. 579.*

*Effect of Lead Arsenate Spray on Composition and Vitamin Content of Oranges. E. M. Nelson and H. H. Mottern, Washington, D. C. —p. 587.

*Public Health Aspects of Frozen Foods. C. R. Fellers, Amherst, Mass. *—p. 601.*

Statistical Study in Maternal Mortality. E. S. Macphail, Ottawa, Ont., Canada.—p. 612.

Montreal Water Supply. C. J. Deshaillets, Montreal, Canada.—p. 627.

*Diphtheria Toxoid Precipitated with Alum: Its Preparation and Advantages. D. M. Wells, A. H. Graham and L. C. Havens, Montgomery, Ala.—p. 648.

Effect of Lead Arsenate Spray on Oranges.—Nelson and Mottern present data to show that oranges produced by trees sprayed with lead arsenate differ in chemical composition from normal oranges. The most pronounced difference is a reduction in acidity of the juice; there is also a decrease in sucrose, with a corresponding increase in invert sugar. The arsenic content of the edible portion of the orange was not changed by spraying the tree with heavy doses of lead arsenate. The vitamin C content of oranges from trees sprayed with lead arsenate was found to be considerably lower than that of oranges from unsprayed trees of the same variety and the same degree of maturity. The processing of oranges as practiced by the Plant Quarantine and Control Administration to destroy larvae of the Mediterranean fruit fly did not change the character of the sugars, citric acid or vitamin C content of the fruit.

Public Health Aspects of Frozen Foods.—Fellers calls attention to the fact that fish, meats, poultry, eggs and oysters are especially well preserved by freezing because they retain more nearly their fresh appearance, flavor and character than fruits or vegetables. Most fruits when frozen with sugar retain their flavor well. Vegetables are the most recent addition to the list of frozen foods. Though some varieties freeze well, others do not. Spoilage occurs quickly in vegetables after defrosting. Little change occurs in the chemical, enzymic or nutritive properties as a result of freezing. The changes are largely physical. Freezing greatly reduces the number of micro-organisms present in foods and prevents their multiplication. Emphasis must be placed on the prompt utilization of frozen foods. Until more is known about the subject, frozen products should be consumed while still frozen or within a few hours after defrosting. The ready availability of a large variety of frozen foods at all seasons will serve to give variety and balance to the human diet and should aid in decreasing nutritional deficiency diseases.

Diphtheria Toxoid Precipitated with Alum.—Wells and his associates state that complete precipitation of toxoid with aluminum and potassium sulphate results in a purified product. More than 50 per cent of the original protein remains in the filtrate. A weak toxoid may by this procedure be concentrated to any desired degree. The alum precipitate has a high antigenic value. A single injection of 0.5 cc. in guinea-pigs protects against 50 to 100 minimum lethal doses of toxin injected four weeks later. A single injection of 1 cc. in ninety-eight Schick-positive children resulted in a negative test eight weeks later in ninety-two (94 per cent).

Archives of Neurology and Psychiatry, Chicago

27: 1273-1515 (June) 1932

Surgical Mortality Percentages Pertaining to Series of Two Thousand Verified Intracranial Tumors: Standards of Computation. H. Cushing, Boston.—p. 1273.

Histologic Classification of Tumors of Central Nervous System. G. Roussy and C. Oberling, Paris, France.—p. 1281.

*Histologic Diagnosis of Tumors of Brain. P. Bailey, Chicago.—p. 1290.

Tumors of Sheaths of Nervous System. W. Penfield, Montreal, Canada. —p. 1298.

*Ventriculography and Encephalography: Their Value in Localization and Treatment of Intracranial Lesions. F. C. Grant, Philadelphia. —p. 1310.

*Histologic Studies of Brain in Cases of Fatal Injury to Head: IV. Reaction of Classic Neuroglia. C. W. Rand and C. B. Courville, Los Angeles.—p. 1342.

*Small Foci of Demyelinization in Cortex and Spinal Cord in Diffuse Sclerosis: Their Similarity to Those of Disseminated Sclerosis and Dementia Paralytica. F Wertham, New York.—p. 1380.

Congenital Hypoplasia of Olivopontocerebellar Tracts. H. M. Zimmerman and K. H. Finley, New Haven, Conn.—p. 1402.

Nerve Degeneration in Poliomyelitis: III. Rate of Depression and Disappearance of Components of Conducted Action Potential in Severed Nerves; Correlation with Histologic Degeneration in Groups of Fibers Responsible for Various Components. P. Heinbecker, G. H. Bishop and J. L. O'Leary, St. Louis.—p. 1421.

Sex Ratio in Migraine. W. Allan, Charlotte, N. C.—p. 1436.

Diagnosis and Treatment of Tumors of Brain: Review of Symposium at First International Neurological Congress. F. C. Grant, Philadelphia.—p. 1447.

Histologic Diagnosis of Brain Tumors.—Bailey states that the histologic nature of a brain tumor should be known before operation, because the operability of the tumor and the method of attack should depend to a certain extent on the histologic structure of the tumor. This is rarely possible to predict, up to the present time, in the case of tumors of the nerve tissue itself. When the surgeon discloses a tumor at operation, the author still believes that there are cases in which his attack should depend on the histologic nature of the lesion, and he is rarely sure enough of the nature of a glioma from the gross appearance to be willing to base his therapeusis thereon alone. There are two methods of determining during operation the nature of the tumor apart from the gross appearance. One is the method of supravital examination recently reported by Eisenhardt. The author has had several years' experience with this method and has not been able to become sufficiently expert to be willing to base his diagnosis on this method alone. It is possible in this way to distinguish between a meningeal tumor and a glioma, for example; but one encounters plenty of difficulty in distinguishing the different types of gliomas from each other with all of the resources of microscopic technic. The other is the method of frozen sections, and this is still the most reliable, for the differentiation of the types of gliomas demands a knowledge of the architectural arrangement of the cells as well as of the structure of the individual cells. After the operation, either from operative specimens or from the necropsy, one obtains material that is useful for microscopic study. It has no longer much immediate practical value, except, perhaps, in the case of the operative specimen for making a prognosis. The author, for finer histologic study, employs three fixatives, either Zenker's or Bouin's fluid, a diluted formaldehyde solution ("solution of formaldehyde U. S. P." 1, water to make 10) and Cajal's formaldehyde-bromide solution. Others are rarely needed.

Ventriculography and Encephalography.—Grant is convinced that in patients with increased intracranial pressure, suspected of having a tumor of the brain, the air should be introduced by direct bilateral ventricular tap and not by lumbar puncture. Ventriculography gives more accurate information as to the position of a mass lesion with less distress and greater safety to the patient than does encephalography. But in patients without increased tension, for a differential diagnosis between atrophy, sclerosis and tumor, or between traumatic neurosis and true posttraumatic encephalopathy, for prognosis in epilepsy, birth trauma or degenerative disease, or for therapy in posttraumatic headache, an outline of the lateral ventricles and subarachnoid channels should always be obtained by encephalography.

Changes in Brain in Fatal Injury to Head.—Rand and Courville describe the changes in classic neuroglia as the result of injury to the human brain. In the first few days following trauma, the astrocytes in the immediately adjacent area undergo regressive change with the formation of ameboid glia. In the zone nearest the point of injury the cells undergo complete destruction. Beyond this zone of destruction, active proliferation takes place. Here, within a few hours after injury, double nucleated forms indicate active direct cell division. In a rather narrow intervening zone, apolar, bipolar and unipolar forms have been found, which, because of their ready impregnation with gold sublimate, are probably viable cells. This is furthermore suggested by the presence in these cells of double nuclei having normal morphologic characteristics. The authors have interpreted these elements as regressive forms capable of reversible reaction. Gliosis occurs only as a result of tissue destruction. The degenerating tissue probably serves as a chemical stimulant to the regional astrocytes. Extensively damaged brain tissue, which requires a rather prolonged activity on the part of the phagocytic mesoglia, delays for a considerable period the formation of the ultimate glial scar. The astrocytes taking part in this delayed reaction are themselves often victims of regressive change, particularly of a hyaline nature. Judging from studies in comparatively recent cases, it seems likely that the neuroglial reaction is a purely local affair and consequently that generalized gliosis following head injury does not occur. The remote clinical sequelae of such injuries are largely to be interpreted on the basis of focal and distant cortical injuries. In addition, there are numerous interruptions in the connecting pathways incident to focal and subcortical injury, together with the changes following widespread petechial hemorrhages.

Foci of Demyelinization in Diffuse Sclerosis.—Wertham calls attention to the fact that small foci of demyelinization may occur in the spinal cord in diffuse sclerosis far from the large lesion in the cerebrum. These foci are primary and not due to secondary degeneration. In one case reported by the author they were similar to the plaques of multiple sclerosis, and in another case they resembled the lesions in subacute combined degeneration. Small areas of demyelinization in the cortex also, not previously described in this condition, were demonstrated in diffuse sclerosis. These small foci of demyelinization in the spinal cord and in the cortex are of the same type as those found in multiple sclerosis and dementia paralytica. The demonstration of these small lesions in the cortex and the spinal cord in diffuse sclerosis shows that there are forms of diffuse sclerosis that resemble multiple sclerosis so closely that in the absence of etiologic knowledge they cannot be distinguished from it.

California and Western Medicine, San Francisco

36: 377-480 (June) 1932

What Medical Profession Can Do to Diminish Mortality from Cancer. R. B. Greenough, Boston.—p. 377.
*Resection of Pylorus: Its Effect on Secretory and Motor Functions of Stomach: Research Prize Paper of Sixty-First Annual Session of the California Medical Association. H. L. Thompson, Los Angeles.—p. 383.
Psychopathic Wards in General Hospital. H. G. Mehrtens, San Francisco.—p. 388.
Regional Anesthesia: Its Modern Technic and Therapeutic Application. M. B. Greene, Brooklyn.—p. 389.
Fractures of Pelvis as Met with in Motor Vehicle Accidents: Report of Cases. Q. B. Coray, Salt Lake City.—p. 392.
Lure of Medical History: Rise of Experimental Embryology. A. W. Meyer, San Francisco.—p. 394.

Resection of Pylorus.—Thompson reports a comprehensive study of the effects of resection of the pylorus on the secretory and motor functions of the stomach. The manner of approach is different from that of any clinical or experimental investigation reported previously. The method is based on the application of certain standard and specially devised surgical operations to the normal stomachs of dogs. The physiologic effects of the operations are observed by gastric analysis and by roentgenologic examination. Contrary to prevailing opinion, and despite the fact that the pyloric sphincter regulates the emptying of the stomach and the admission of duodenal juices into it, resection of the sphincter, combined with Polya gastrojejunostomy, does not lower the acidity of the gastric contents nor hasten emptying of the stomach. Graduated multiple resections of the pylorus confirmed the prevailing belief that the pylorus is essential to physiologically normal gastric secretory function. A roughly quantitative relation between the amount of pylorus present and the efficiency of secretion is suggested. The fact that widening of the outlet of the stomach does not shorten its emptying time also is contrary to the general conception. The most important contribution resulting from this study refers to the apparent and real secretory functions of the pylorectomized stomach. The use of histamine and the Pavlov pouch disclose that the fundus, after removal of the pylorus, continues to secrete gastric juice having normal acid values. The most important factor in the secretion of gastric juice by the pylorectomized stomach is the cephalic phase of secretion as revealed by the performance of vagotomy. Achlorhydria occurring after pylorectomy is only apparent and is the result of neutralization by the duodenal juices and the food. In the past the importance of the duodenal juices in this respect has been overemphasized, whereas the neutralizing capacity of the food has not been stressed sufficiently.

Colorado Medicine, Denver

29: 233-268 (June) 1932

Chronic Nephritis. R. H. Major, Kansas City, Kan.—p. 236.
The Outlook for Medicine. J. W. Amesse, Denver.—p. 242.
Rheumatic Fever. L. W. Frank, Denver.—p. 245.
Rheumatic Heart Disease. C. T. Burnett, Denver.—p. 248.
Surgical Forms of Nontuberculous Joint Diseases. C. E. Sevier, Denver, —p. 251.
Arthritis Deformans. C. N. Meader, Denver.—p. 253.

Illinois Medical Journal, Chicago

61: 453-540 (June) 1932

Medicine and Big Business. R. R. Ferguson, Chicago.—p. 491.
Parenteral Administration of Liver Extract in Postoperative Treatment. J. K. Narat, Chicago.—p. 498.
The State of Illinois and Its Problem of Mental Disease and Defectiveness. C. F. Read, Elgin.—p. 502.
Early Diagnosis of Acute Intestinal Obstruction. E. I. Greene and J. M. Greene, Chicago.—p. 506.
Sterility in the Male. V. D. Lespinasse, Chicago.—p. 509.
Treatment of Intestinal Obstruction: Based on Newer Conception of Rôle that Chemical Disturbances, Shock-Syndrome and Transperitoneal Absorption of Toxins Play in Production of Symptoms. E. H. Mensing, Milwaukee.—p. 511.
Appendicitis and Poliomyelitis. M. H. Hobart, Chicago.—p. 518.
Agranulocytic Angina: Case Report of Recovery Following Treatment by Intravenous Injection of Liver Extract. F. L. Foran, Chicago. —p. 521.
Clinical Significance of Anomalies of Upper Urinary Tract. V. J. O'Conor, Chicago.—p. 523.
Surgical Anatomy of Thyroid Gland. R. F. Weissbrenner, Chicago.—p. 528.
Organic Sulphur in Treatment of Secondary Anemia. W. L. Benishek and E. T. Hessle, Joliet.—p. 531.
Use of Glucose in Surgical Therapeutics. R. W. McNealy and J. D. Willems, Chicago.—p. 535.

Iowa State Medical Society Journal, Des Moines

22: 243-294 (June) 1932

The President's Address C G. Smith, Granger—p 243.
President Elect's Address. B L. Eiker, Leon—p 244
Radiotherapy and Its Use in General Surgery. E L Rypins, Iowa City—p 248
*Duodenal Diverticulum. Review of Literature and Report of Three Cases A T Harris, Sheldon—p 252.
Poliomyelitis R Stahr, Fort Dodge—p 259.
Noise and Some of Its Ill Effects R R Snyder, Des Moines—p 263
Results of Monocular Occlusion of Each Eye in Testing for Hyperphoria L A Taylor, Ottumwa—p 267

Duodenal Diverticulum.—According to Harris, duodenal diverticulum is relatively common, being present in approximately 1 per cent of all gastro-intestinal roentgen examinations Three cases are reported in a series of 400 such examinations over a period of three years. Polgar's classification into genuine and pseudo diverticula is advanced as the most logical for the clinician, the roentgenologist and the surgeon, leaving histologically correct classifications to the pathologist. The genuine diverticulum is, etiologically, due to a congenital defect or weakness with superimposed pathologic changes causing increased intra-intestinal pressure. The pseudodiverticulum is primarily due to a preexisting pathologic condition that weakens or breaks through that immediate portion of intestine Practically all diverticula occur in patients past middle age. Diverticula vary considerably in size and number. Constant symptoms are (1) the periodicity of the attacks, (2) the feeling of well being in the morning, with pain and vomiting coming on toward evening, and (3) the relief from symptoms on lying down. It is emphasized that these and other probable symptoms are due to the superimposed diverticulitis. The complications and not the anatomic disturbance cause all symptoms, the diverticulum, alone, being innocent. The roentgen signs alone are diagnostic of diverticulum and also establish the diagnosis of diverticulitis Other things being equal, any slowly emptying diverticulum which is probably complicated by diverticulitis is best treated surgically.

Journal of Biological Chemistry, Baltimore

96: 573-805 (June) 1932 Partial Index

Effect of an Acid Extract of Anterior Pituitary on Iodine Concentration of Blood and Thyroid Gland K. Closs, L Loeb and E M MacKay, La Jolla, Calif—p 585.
*Factors in Food Influencing Hemoglobin Regeneration I Whole Wheat Flour, White Flour, Prepared Bran and Oatmeal Mary Swartz Rose and Ella McCollum Vahlteich, New York—p 593
*Studies in Physiology of Vitamins XIX Acid Base Balance of Blood During Lack of Undifferentiated Vitamin B Ethel Burack and G R Cowgill, New Haven, Conn—p 673
Id: XX. Glucose Tolerance During Lack of Undifferentiated Vitamin B Ethel Burack and G R. Cowgill, New Haven, Conn—p 685
Metabolism of Tryptophane· III Availability of Kynurenine in Supplementing a Diet Deficient in Tryptophane R W Jackson and W. T. Jackson, New Haven, Conn—p 697
*Galactose Tolerance of Normal and Diabetic Subjects, and Effect of Insulin on Galactose Metabolism J H Roe and A S Schwartzman, Washington, D C—p 717
Fat Transport Through Lymph System in Fasting and Phlorhizin Poisoning. H. R Rony, B Mortimer and A. C Ivy, Chicago—p 737
Studies on Rennin I Purification of Rennin and Its Separation from Pepsin H Tauber and I S Kleiner, New York—p 745
Id· II. Isolation of Prorennin I S Kleiner and H Tauber, New York—p 755
Lipid Excretion VIII. Lipid Content of Intestinal Mucosa W M Sperry, New York.—p 759
Id IX Secretion of Lipids into Intestine W M Sperry and R W. Angevine, New York.—p 769

Food Factors Influencing Hemoglobin Regeneration.—According to Rose and Vahlteich, the cure of nutritional anemia induced in rats by milk feeding may be accomplished in six weeks by supplementing milk with whole wheat, prepared bran, or oatmeal in quantities to furnish as much as 0.2 mg. of iron daily. Copper as well as iron plays a part. A hydrochloric acid solution of whole wheat or of bran ash does not give quite as good regeneration as the original food material. The average hemoglobin increase with the ash of 6 Gm. of whole wheat was 7.8 Gm. per hundred cubic centimeters of blood, about the same as with iron and copper supplements to white flour, while that of the original wheat was about 30 per cent higher. The difference between the hemoglobin regeneration induced by the ash of 1.8 Gm. of prepared bran and the corresponding quantity of the bran itself was less striking but in the same direction.

Studies in Physiology of Vitamins.—Burack and Cowgill made a study of the dextrose tolerance of dogs subsisting on a diet lacking undifferentiated vitamin B. The effects of the concomitant fasting were adequately controlled. A definite decrease in dextrose tolerance was exhibited by both the vitamin B-deficient animals and the controls. The degree of the disturbance was directly proportional to the severity of the fasting. In five polyneuritic animals the vitamin was administered in the form of a preparation containing a considerable amount of carbohydrate, so that it was not possible to conclude whether the observed improvement in dextrose tolerance was due specifically to the vitamin. In two experiments a concentrate of the antineuritic factor practically devoid of carbohydrate and suitable for parenteral administration was available. Intravenous injection of this product was made into the dogs exhibiting the characteristic nervous manifestations of vitamin B deficiency. Despite the removal of the symptoms by this concentrate there was no significant effect on the carbohydrate tolerance Ingestion of food, however, was promptly followed by a return of the dextrose tolerance to normal. On the basis of their study the authors conclude that the decrease in carbohydrate tolerance shown by animals deprived of vitamin B is the result of the accompanying inanition The view that vitamin B plays a specific rôle in the metabolism of carbohydrate is not supported by their investigation

Galactose Tolerance of Normal and Diabetic Persons.—Roe and Schwartzman present experimental data which show that galactose is well tolerated by diabetic persons when given in large doses. The administration of galactose in smaller amounts along with other foods should result in even better tolerance and less urinary excretion. It therefore seems probable that galactose might be made a valuable adjunct to the diet in the clinical management of diabetes mellitus. The use of a sugar that has nutritive value and a satisfying sweetness, and whose administration by mouth produces practically no greater saccharemia in diabetic persons than in normal subjects, should mark considerable advance in the control of diabetes mellitus and its undesirable consequences, such as diabetic retinitis and endarteritis, conditions which are presumably etiologically related to hyperglycemia The authors' work demonstrates that galactose ingestion by the diabetic person does not produce the hypersaccharemia characteristic of dextrose ingestion, and that this is apparently because insulin is not necessary for the anabolism of galactose

Philippine Islands M. Assn. Journal, Manila

12: 147 196 (April) 1932

Lymphatic Absorption of Oily Antileprotic Drugs, Given Intradermally and Subcutaneously A Demonstration J O Nolasco, Culion—p 147
Cataract Among Filipinos A R Ubaldo and C D Ayuyao, Manila—p 160
Normal Pelidisi Index of Filipinos M Ocampo and I Concepcion, Manila—p 164
Vulvectomy and Perineorrhaphy in Epithelioma of Vulva and Rectum C D Franco, Manila—p 171
Relationship of Nutrition of Mother and That of Fetus H Acosta-Sison, Manila—p 173

Rhode Island Medical Journal, Providence

15: 77-96 (May) 1932

Pathologic Gallbladder Roentgen Aspect P Batchelder, Providence.—p 77
Electrocardiograph as Diagnostic Aid C C Dustin, Providence—p 78

15: 97-114 (June) 1932

Gallbladder Disease · H E Wellman, Providence—p 97
Treatment of Acute Poliomyelitis with Convalescent Serum. D L Richardson and E J. West, Providence—p 100

West Virginia Medical Journal, Charleston

28: 241-288 (June) 1932

Clinical Value of Electrocardiograph G. H Barksdale, Charleston—p 241
Clinical Experience with "Avertin" Anesthesia C C Greer, Clarksburg—p 247.
"Avertin" Anesthesia J. A. Duff, Martinsburg—p. 250
Intravenous Urography with Uroselectan Report of Case L. E. Shrewsbury, Beckley—p. 255.
Focal Infection from Dental Standpoint. C R Adams, Charleston.—p 259
The County Secretary G R Maxwell, Morgantown—p 260

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 923-968 (May 21) 1932

- *Menopausal Insanity and Bacterial Toxemia. T. G. Moorhead.—p. 923.
- *Menopause and Its Complications. G. FitzGibbon.—p. 924.
- *Phototherapy in Erysipelas. J. M. Davidson.—p. 929.
- Carbon Dioxide Absorption Methods in Anesthesia. F. T. Evans.—p. 931.
- Use of Takayama's Solution in the Identification of Blood Stains. A. V. Greaves.—p. 932.
- Sarcoma Associated with Known Trauma: Two Cases. D. H. Haler.—p. 933.
- Ambulatory Treatment of Varicose Veins by Combination of Ligation and Injection. A. D. Wright.—p. 934.

Menopausal Insanity and Bacterial Toxemia.—Moorhead considers it of importance to examine every case of insanity occurring at the climacteric for possible septic infection. He reports a case of menopausal insanity that was apparently due to focal sepsis. For most of the time the patient was unable to speak, to stand or to walk. All her muscles were excessively flabby; she apparently did not recognize people. There was dribbling of saliva all the time, constant incontinence of urine and feces, and her expression was quite devoid of any intelligence. There was sobbing and crying sometimes nearly all day. She seemed quite hopeless. During ten months, with the exception of a short period of distinct mental improvement, she became from the psychologic point of view progressively worse. There was extreme depression, frequent fits of weeping, sometimes extreme restlessness with shouting. The idea was suggested that a hysterectomy might possibly relieve the symptoms. A complete hysterectomy was performed, both ovaries being removed at the same time. The excised uterus was found to be in a much more septic condition than had been imagined. From the physical point of view the patient stood the operation well, and, apart from a mild heart attack three weeks later, probably caused by small emboli reaching the lungs, she made an uninterrupted recovery. The most striking result of the operation, however, is the fact that almost immediately after the operation her mental condition showed a most remarkable improvement. A week before the operation, an experienced alienist regarded her condition as one of hopeless presenile dementia. Three weeks after the operation, she was able to reply sensibly to simple questions. After a week she began to notice her surroundings and to recognize her friends and relatives. In a fortnight there was evidence of returning memory. From that day there has been progressive improvement physically and mentally. Five months after the operation, the patient was able to go out for daily walks and drives; she eats well, sleeps well, and enjoys the visits and conversation of her friends. She writes short letters, can read the newspaper for a short period, and her face has recovered its old expression of intelligence.

Menopause and Its Complications.—FitzGibbon enumerates the causes of pathologic states of the uterus at the time of the menopause as follows: (1) ascending infection promoted by stagnation of menstrual or other discharges from the uterus and cervix; (2) laceration and damage during childbirth of the cervix and parametric tissues, exposing those tissues to chronic infection; (3) septic infection following childbirth; (4) gonococcal infection on which secondary infection has supervened—far less common than the preceding, and (5) growth and influence of neoplasms, chiefly uterine fibroids. The pathologic lesions that are produced and influence the course of the menopause are: (1) chronic hyperplasia of the body of the uterus; (2) chronic metritis with chronic cervicitis, and (3) chronic cervicitis, with or without parametric induration. Associated with these conditions there is an increased vascularity; the smaller arteries are hypertrophied, and there is venous congestion. During the active child bearing period of life these lesions produce varying degrees of leukorrhea calling for palliative treatment, such as routine douching, applications of caustics, and curettages. These treatments have no more curative effect on the chronic infection than gargles in chronic tonsillitis. Amputations of the cervix effect cures when the portio vaginalis is the part involved, but they frequently stop far short of removing the main center of infection, which is the supravaginal portion. When the period of the menopause is reached, and atrophy of tissue has proceeded, the vitality of the tissues is reduced, and the production of toxins from the chronic infection is increased. The local condition, leukorrhea, has been accepted as inevitable, while increased menstrual loss reduces the woman's resistance but is considered a necessary part of the menopause. The author in no sense advocates hysterectomy as a universal treatment for ill health at the time of the menopause. The differential diagnosis of the lesions described is a difficult and minute matter. It is seldom possible to make an early decision. In the majority of instances a decision will be reached only after a period of observation, but the lesions which exist at the onset of the menopause can be observed and should be sufficient to indicate treatment by hysterectomy if the ill health increases. Serious and permanent damage may thus be prevented. When hysterectomy is resorted to, it must be of the total type. The failure to observe the benefits of hysterectomy in these cases has in the past resulted from the common practice of performing the high partial operation: this relieved the menstrual symptoms but did not remove the toxic element.

Phototherapy in Erysipelas.—Davidson presents a report on fifty-one cases of erysipelas treated by exposure to an artificial source of ultraviolet radiation, the exposure being from one and a half times to twice that required to produce a definite erythema on normal skin. The treatment of erysipelas, particularly the early case, by ultraviolet radiation appeared to give better results than other methods in use. The method is easily applied, usually available, devoid of danger, clean and inexpensive. The technic is simple and can be carried out with any ultraviolet lamp of known efficiency. Before treatment is begun, any soothing preparation previously applied to the part, especially if greasy, is carefully removed from the affected area and surrounding skin. All patients, except infants, are exposed for five minutes with the arc at a fixed distance of 12 inches (30 cm.). In the case of infants a slightly shorter exposure is employed, when the actual individual erythema dose is not estimated. In all cases part or all of the inflamed area, according to its extent, is included in the exposure, with a margin of about 1½ inches (3.8 cm.) of healthy skin when this is possible, the rest being protected by some light covering. In facial and head cases generally, the eyeballs are protected by small pads of absorbent cotton fixed by a narrow strip of adhesive plaster, but the eyebrows are left uncovered, and each part of the spreading edge is systematically exposed to rays falling, as far as possible, perpendicularly. When the entire involved area is easily covered by one exposure this completes the treatment, but occasionally part of the lesion, which at the time of admission is assumed to have subsided, is neglected and has to be treated later. In the few cases in which definite extension occurs through the erythematous area, the treatment is repeated one or two days later if a margin of healthy skin can still be included. Following the irradiation, the affected part is left uncovered, or at least without dressings, except when pain is a prominent feature, and in these lint wrung out in cold water and frequently renewed is sufficient. All other treatment is symptomatic.

Lancet, London

1: 1131-1184 (May 28) 1932

- *Bright's Disease: Unity and Relationships of Toxic Nephritis. H. Gainsborough.—p. 1131.
- *Spontaneous Subarachnoid Hemorrhage. A. J. Hall.—p. 1135.
- *Cardiac Irregularities During Chloroform Anesthesia. I. G. W. Hill.—p. 1139.
- Additional Factors in Treatment of Late Rickets and Osteomalacia. D. C. Wilson.—p. 1142.

Bright's Disease.—According to Gainsborough, toxic nephritis is a disease in which progressive changes in the kidneys, of the most variable severity, are associated with a clinical picture which presents a unity, despite the differences which are due mainly to the length of duration of the process. From the most acute forms to the mildest forms, every degree of severity can be found, and it is impossible to find natural subdivisions. "Nephrosis" comprises a clinical and metabolic syndrome which is superimposed on all cases of toxic nephritis to a degree depending mainly on the mildness of the nephritis and consequently on the length of time available for this syndrome to develop. The most nephrotic cases are those in which the nephritis presents the mildest histologic changes and the slowest rate of progression. All cases of toxic nephritis present a progressive loss of renal function and tend to terminate in uremia. In the most nephrotic cases this change is so slow that in such cases the patients die usually from intercurrent infection or recover before loss of renal function, as usually measured, is recognizable. The nature of this progressive loss of renal function is identical in all cases of toxic nephritis, whatever the cause and whatever the severity.

Spontaneous Subarachnoid Hemorrhage.—Hall believes that in any individual case of spontaneous subarachnoid hemorrhage the question of death or recovery depends largely on whether the bleeding point is capable of firm closure or not, and this in turn depends on its size and surroundings. These cannot be known during life. Provided the patient is kept at rest, and lumbar puncture is done at the onset for diagnostic purposes, and incidentally to a sufficient extent to relieve any increased pressure at the time, it is unnecessary to expose the patient to the discomfort of repeated punctures, unless the pressure symptoms persist or get markedly worse. Slight exacerbations may occur from time to time but are probably not due to further bleeding, and they disappear when left alone.

Cardiac Irregularities During Chloroform Anesthesia.—Hill states that disturbances of cardiac action which generally elude clinical observation can be detected electrocardiographically during chloroform anesthesia. They occur in about 50 per cent of cases and are of the nature of multiple ventricular extrasystoles. These on occasion may be very numerous, and the condition then resembles the "multiple ventricular tachycardia" so characteristically found in the cat, and well known as a precursor of fatal ventricular fibrillation. The author believes that the danger of choloroform for induction probably lies in its tendency to produce these disturbances.

Presse Médicale, Paris

40: 981-996 (June 22) 1932

Insufflation of Stomach in Clinical Roentgenography. P. Duval and H. Béclère.—p. 981.
*Rapid Cholecystography. C. Antonucci.—p. 983.
Nontraumatic Fractures and Fragmentations of Patella. J. Didiée.—p. 987.
Path of Evacuation of Gallbladder. Nemours-Auguste.—p. 988.
Rapid Roentgenographic Exploration of Appendix. S. Kadrnka and R. Sarasin.—p. 990.

Rapid Cholecystography.—By giving an injection of dextrose before the injection of tetiothalein sodium, Antonucci obtains cholecystograms in a shorter time than is possible by the method now in use. The essential part of his method consists in an intravenous injection of 125 cc. of a 40 per cent solution of dextrose followed after a ten minute interval by an intravenous injection of from 2 to 3 Gm. of tetiothalein sodium in the usual solution. When possible, it is well to prepare the patient by placing him on a low carbohydrate diet for three or four days previous to the test to aid in the complete absorption of the sugar mixture by the liver, but this is not necessary. When the patient is prepared only by fasting during the night and morning hours prior to the test, the intravenous injection of the sugar and tetiothalein sodium may be followed by 25 units of insulin given subcutaneously, but this is also not necessary. By this method visualization in normal individuals begins from one-half to one hour after the injection and reaches a maximum two hours after injection. The author thinks that the explanation for the rapidity of visualization by this method lies in the fact that dextrose is necessary for the absorption of tetiothalein sodium by the liver. This explanation was supported by a study of the sugar curves following injection of tetiothalein sodium alone and also by the results of injection of this substance alone into diabetic persons. It was demonstrated experimentally that the author's method produces an afflux of bile after half an hour, two or three times that produced in Graham's method; this rapid and abundant afflux of bile charged with iodine helps to account for the rapid visualization. Strawberry gallbladders were filled not at all or slowly. Whatever the explanation, failure of the gallbladder to become filled by this method is, in the absence of other abdominal disturbances which might account for it, a certain sign that the organ is diseased.

Deutsche medizinische Wochenschrift, Berlin

58: 919-958 (June 10) 1932. Partial Index

*Auxoneurotropic Action of Epinephrine and of Solution of Pituitary. U. Friedemann and A. Elkeles.—p. 923.
Diagnosis of Beginning Circulatory Insufficiency. H. Strauss.—p. 926.
Concurrence of Diabetes Mellitus and Catarrhal Icterus. H. Dibold.—p. 928.
*Use of Canned Vegetables and Fruits in Feeding of Nurslings and Children. A. Reiche.—p. 929.
Action of Quinine on Avian Malaria and on Pneumococcic Infection of White Mice. P. Kuhn and K. H. Dombrowsky.—p. 930.
Tenter to Facilitate Suturing of Operative Wounds. H. Oppenheimer.—p. 932.
Automatic Registration of Erythrocyte Sedimentation Speed. E. Sachs.—p. 932.
Recognition and Treatment of Sepsis. A. Buzello.—p. 933.
Cinematographic Demonstration of Emigration of Leukocytes in Warm-Blooded Animals. J. Tannenberg.—p. 936.
Cinematographic Technic in Psychiatry and Neurology. A. Strauss.—p. 937.

Auxoneurotropic Action of Epinephrine and of Solution of Pituitary.—In animal experiments for production of anesthesia by artificial perfusion of the brain, Friedemann and Elkeles found that intravenous injection of epinephrine and of solution of pituitary reduced the threshold value of anesthetics such as ethyl urethane, paraldehyde and alcohol to about one fifth; that is, one fifth of the usual anesthetic dose was sufficient to produce anesthesia. Other hormones, such as insulin and thyroxine, did not have this effect. It was also noted that the toxic action of strychnine and of cobra toxin was increased fivefold by epinephrine and solution of pituitary. By special methods of staining it could be demonstrated that the auxoneurotropic action of epinephrine and solution of pituitary can be traced to an increased invasion of neurotropic substances into the brain. Substances that are not neurotropic, such as arsphenamine, antitoxin and trypan blue, do not enter the brain even under the influence of epinephrine or solution of pituitary. The authors discuss the significance of these observations for pharmacologic, chemotherapeutic, serotherapeutic and pathogenic problems.

Canned Vegetables and Fruits in Feeding of Children.—In order to determine whether canned fruits and vegetables are suitable for feeding nurslings and children, Reiche made observation on 613 inmates of a children's home, who for shorter or longer periods were fed with canned vegetables. The children were subjected to regular examinations, the urine was tested, the first signs of rickets were watched for, and occasionally roentgen tests were made. These observations revealed that factory canned fruits and vegetables can be used for long periods in the diets of nurslings and children without causing disorders that are produced by vitamin deficiency.

Zentralblatt für Chirurgie, Leipzig

59: 1457-1504 (June 11) 1932

Technic of Suprapubic Prostatectomy. D. Kulenkampff.—p. 1458.
*Operation of Double Harelip. A. Hagentorn.—p. 1460.
Extended Sacral Operation for Cancer of Rectum. E. Makai.—p. 1464.
*Operative Results of Herniotomy in Femoral Hernia. E. Husted.—p. 1465.
Acute Appendicitis with Adhesions of Femoral Nerve. F. Schewket.—p. 1471.
Protection of Abdominal Walls During Laparotomies by Means of Rubber Flanges. E. Fuchsig.—p. 1472.
Tilted Kidney Caused by Kyphoscoliosis. O. Orth.—p. 1474.
Simple and Successful Treatment of Ganglions. H. Günther.—p. 1476.

Operation of Double Harelip.—Hagentorn declares the following rules as essential for a successful operation of harelip: (1) complete preservation of all the tissues, because the misformed lip has no excess of tissues; (2) utilization of each special tissue for the purpose for which it was intended by nature. He considers operations that do not follow these rules no longer justified. For the double harelip he recommends two operations. He describes his operative technic. The first intervention has the purpose to repair the cleft, preserve the philtrum and form the red portion of the lip. The second operation can be performed from three to four weeks after the first one, or later. It is done to raise and narrow the broad, flat nose, to improve the septum and philtrum, and to bring the lip downward and forward. If it is considered how much the correction of the malformation means to the patient, and that the second intervention can be made at any time later (because the first operation overcomes the main deformity), the greater complexity of the two-stage procedure cannot be considered as a contraindication, for the better results justify it.

Results of Herniotomy in Femoral Hernia.—The review of a large material convinced Husted that operations for femoral hernia have a larger percentage of relapses than is usually admitted, but it also showed that a special type of operations, namely, the so-called inguinal methods, give better results than any others. In these interventions the inguinal canal is opened and the hernial sac extirpated high. Then the femoral and inguinal canals are closed by suturing the musculature and Poupart's ligament to the pelvic rim (pecten ossis pubis).

Zentralblatt für Gynäkologie, Leipzig

56: 1505-1568 (June 18) 1932

Plastic Surgery of Mamma. L. Fraenkel.—p. 1506.
*Time of Conception. M. Bolaffio.—p. 1510.
Therapy of Myoma. W. Benthin.—p. 1520.
Decidua Menstrualis. L. Ballin.—p. 1525.
Pharmacologic Behavior of Uterus of Guinea-Pigs During Various Phases of Cycle and of Gravidity. H. Hartmann and F. Schäfer. —p. 1526.
Biologic Behavior of Uterine Muscle of White Mice. F. Kammerhuber. —p. 1531.
Anencephalus in Twin Pregnancy. S. Simon.—p. 1536.

Time of Conception.—Bolaffio disagrees with Knaus and Ogino (abstr. The Journal, Oct. 12, 1929, p. 1183, and June 18, 1932, p. 2257), who assume that there is a period of physiologic sterility during the menstrual cycle. He believes that there is no period of absolute sterility but that there are considerable fluctuations in the degree of conception capacity. Conception is most likely during the first twelve days of the menstrual period, the seventh and eighth days being the most fertile. During menstruation the first two days are less fertile than the following. The conception capacity decreases from the ninth day on. Least fertile is the period between the seventeenth and the twenty-eighth day, but to consider conception an impossibility during this period is not warranted. If the menstrual period is longer than twenty-eight days, the time immediately preceding menstruation has a considerable degree of fertility. The author also expresses the opinion that the conception of boys is most frequent during the period of greatest fertility, and he thinks it probable that the degree of maturity of the ovum is responsible for this. He also discusses causes and time of the rupture of the follicle.

Terapevtichesky Arkhiv, Leningrad

9: 281-350, 1931

Clinical and Experimental Study of Gallop Rhythm. L. I Fogelson. —p. 283.
*Determination of Venous Pressure, Changes in Phlebogram by Plesch's Method and Early Diagnosis of Decompensation. A. L. Vilkoviskiy and S I. Umanskiy.—p. 294.
Roentgenokymography in Analysis of Cardiac Contraction. G. E. Sorokin.—p. 305.
Experimental Study of So-Called Heart Hormone and Its Value in Cardiotherapy. D. M. Abdulaev.—p. 313.
*Practical and Theoretical Study of Diets in Treatment of Ulcer of Stomach: Butter and Egg-White Diet. B. P. Kushelevskiy.—p. 323.
Hyperglycemic Curve in Various Hepatic Disturbances (Effect of Overloading with Sugar). D I. Malskiy.—p. 335.
Disturbances of Sympathetic Nervous System: Organoneurosis, Organopathy and Cerebropathy. E. M. Kastanayan.—p. 342.

Venous Pressure.—Vilkoviskiy and Umanskiy used Valdman's apparatus in the determination of venous pressure. Sodium citrate, instead of water, in the manometer minimized the possibility of blood clots. It has been suggested that decompensation is related to stagnation in the greater circulation and consequently to venous pressure. Plesch's method, which the authors used for determination of the venous pressure, is based on the fact that pressure in the region of the liver during decompensation causes a stagnation in the right ventricle and the central veins and then a dilatation in the jugular veins. The phlebogram registered such changes. The authors examined thirty-nine patients with compensated and forty-four patients with decompensated cardiac conditions and conclude that absolute figures of venous pressure are not of clinical interest. In normal and compensated cardiac conditions Plesch's test registers an increase of venous pressure of from 2 to 10 mm. of water, whereas in patients with decompensation the venous pressure is always increased in excess of 10 mm. of water. Plesch's test may be used in the early diagnosis of decompensation as well as for a control method in treatment.

Diets in Treatment of Ulcer of Stomach.—Kushelevskiy states that during the last eight years he has observed 300 patients with gastric and duodenal ulcers and has treated 155 of those with the more severe and complicated ulcers with a modification of Yarotskiy's diet. The entire treatment was divided into three parts: The first part, which lasted from eight to ten days, consisted of a strict butter and egg-white diet, not exclusive of liquids; the diet during the second and transition period (from four to six days after disappearance of pains) included thick porridge, no salt, and with 100 Gm. of butter for luncheon and dinner and two soft boiled eggs for breakfast, and in case of continued pains, a glass of egg-white for an interval of from three to five days; at the beginning or end of the third week, the third part of the diet included besides the thick gruel also tea with milk, fried eggs, white biscuits, milk soups, purée, compotes, and small quantities of milk (preferably citrated). To combat hypersecretion the author administered extract of belladonna (from 0.015 to 0.02 Gm. three times a day) as well as alkalis and magnesium carbonate. The first period relieved the pain and gave the stomach more modulated motor function, the second served as a test for treatment and the third period brought the patient back to a normal diet and built up his strength again. The results were favorable in 95 per cent of the patients treated. The author believes that Yarotskiy's diet did not decrease gastric secretion—whenever that occurred, it was probably due to psychic inhibition. In 50 per cent of the patients the gastric secretion was increased, in 23 per cent it was decreased, and in 27 per cent it was unchanged. Roentgenograms before and after the diet did not demonstrate a parallelism between motor and secretory function. The alleviating action of the diet is not due to a lowered acidity but to elemination of the pyloric spasm and irregularities in motor function. The strict albumin-fat diet with sparing of carbohydrates during the first period results in acidosis, ketosis and acetonuria, which disappear when the diet is expanded; while the large quantities of butter may have a therapeutic effect through the resultant cholesteremia.

Hospitalstidende, Copenhagen

75: 677-704 (May 12) 1932

*Clinical Significance of Diastasuria: II. Postoperative Diastasuria. J. Foged.—p. 677.
Experiences with Metal Salt Treatment According to Walbum in Diseases of Nervous System. Sarah Kielberg and C. J. Munch-Petersen. —p. 699.

Postoperative Diastasuria.—Foged made about 3,000 determinations of the postoperative diastase content of the urine in 728 patients. In 101 a pathologically increased postoperative diastasuria was noted. As causes he discusses anesthesia, traumatic irritation of the pancreas, decreased diuresis, wound infection and infectious toxic pancreatitis.

Hygiea, Stockholm

94: 417-448 (June 15) 1932

Case of Poisoning with Etheroleum Sabinae with Unusual Picture. E. Wessén.—p. 417.
*Histamine in Diagnosis of Latent Jaundice. H. af Ekenstam.—p. 426.
*Sedimentation Reaction in Fractures. T. Olovson.—p. 433.

Histamine in Diagnosis of Latent Jaundice.—Af Ekenstam concludes that the histamine test cannot replace the usual methods for determination of the bilirubin content of the blood serum, but because of its simplicity it can be a useful guide to the practitioner.

Sedimentation Reaction in Fractures.—Olovson says that in all of 121 cases of uncomplicated fractures and four of hemarthrosis there was a rise in the sedimentation speed of the red blood corpuscles above the normal value, the rise appearing during the first twenty-four hours in 75 per cent of the cases. The maximum was reached from the fifth to the seventh day and was followed by a slow decline, with return to normal value after well advanced consolidation. This reaction depends partly on the extent of the lesions of the bones and soft parts, partly on the patient's age. How significant the reaction may be from the practical clinical point of view, as an indication of the consolidation and healing of the fracture, cannot now be determined.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 99, NO. 10 CHICAGO, ILLINOIS SEPTEMBER 3, 1932

PRACTICAL REFLECTION ON CERTAIN GASTRO-ENTEROLOGIC PROBLEMS AND TRENDS

CHAIRMAN'S ADDRESS

GEORGE B. EUSTERMAN, M.D.
ROCHESTER, MINN.

Those whose major interest and energy are taken up with the gastro-enterologic field of medicine realize that a great many morbid functional and organic states to which human flesh is heir find expression in disorders of the digestive tract. By virtue of this fact, he who would most successfully cope with the problems that arise daily should be, essentially, a versatile clinician whose point of view is broad. As the subject matter is obviously too huge to warrant general consideration, I shall confine my observations to two entities which an eminent American professor of medicine, in a practical though obviously light mood, said constituted the only diseases of the stomach, namely, ulcer and carcinoma.

Exact knowledge concerning the etiology and pathogenesis of any disease is of paramount importance in its prevention, cure or complete eradication. Yet, in spite of unprecedented scientific progress in the last half century, one is witness to the paradox of knowing little or nothing about the causation and mode of development of many common organic diseases. Knowledge of cause and development is mainly confined to morbid states, the result of specific bacterial infection, or of bacterial and chemical toxins, to protozoal, fungous or helminthic infestation, states of vitamin deficiency and certain allergic conditions. One need but recall the humiliation consequent on, or the ineffectiveness of, treating along conventional lines a gastric lesion, profound anemia, ophthalmia, diarrhea or jaundice, which on further investigation was proved to be, respectively, due to [illegible] latum, vitamin A deficiency, gastrocolic fistula and carrots! With timely recognition of the causative agent under such circumstances, the therapeutic procedure is obvious and the favorable results are strikingly prompt.

If for no other reason than that peptic ulcer is a highly prevalent disease, directly affecting the health and efficiency of many adult members of every community, one's concern or curiosity should naturally be aroused as to the circumstances which might give rise to this condition. That this subject has been of real interest to members of the medical profession is attested to by an enormous scientific material of international scope, which has recently been summarized and appraised in a comprehensive monograph (of 387 pages) by von Redwitz and Fuss. Hauser's classic contribution to the subject in Henke and Lubarsch's "Handbuch der speziellen pathologischen Anatomie und Histologie," published six years ago, has exerted powerful influence throughout the scientific world. In addition to this may be added the results of numerous and important researches of many investigators, made in the last decade.

Hauser, after calling attention to those varied and familiar factors, any one of which he maintained, can lead to hemorrhagic infarction, erosion and acute ulcers of varying depth, size and shape, summarized his observations as to what makes for chronicity of the lesion in the following manner: It is dependent on the interaction of various factors which already partly constitute the first cause of the acute ulcer, and which are found partly in the anatomic structure of the gastric wall and in the functioning of the stomach, partly first produced through formation of the ulcer itself. In ulcers founded on disease of the vascular element, or on a neurogenic basis, the continued action of either original cause of the ulcer may suffice to render healing more difficult. Accessory to this are the heightened chemical and mechanical (retention, spasm of the vessels and musculature) influences exercising a deleterious effect on the lesion, the very presence of which make such effect possible. Hauser added that all these factors are increased if the patient who has ulcer simultaneously manifests a neuropathic tendency. Hauser's influence is plainly seen in the conclusions drawn by von Redwitz and Fuss.

It seems to be difficult to reconcile clinical facts with conclusions reached in the past. Every one shares a common environment, is subject to the same deleterious influences, and yet the majority escapes the disease. What is it that initiates the process and what are the factors that destine the initial lesion, whatever it may be, to become chronic or complicated? In searching for the possible answer one must at least briefly consider and evaluate certain hypotheses and certain clinical, experimental and pathologic facts.

The modern pathologist apparently remains faithful to the old conception of Virchow that circulatory disturbances in the veins and arterioles of the submucosa are followed by regional necrosis of the mucous membrane, digestion of the devitalized area by the gastric juice, and ulceration. The research worker disputes this conception of the formation of ulcer, because he argues that considerable injury to, or ligation of, the blood vessels in the experimental animal does not result in chronic peptic ulcers. On the other

---

From the Division of Medicine, the Mayo Clinic.

Read before the Section on Gastro-Enterology and Proctology, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

hand, his researches cause him to maintain that ulcers develop from the mucosa outwardly toward the serosa, largely as the result of chemical and mechanical factors, disharmony between the acid-forming and acid-regulating or neutralizing mechanism. The belief in the causative part played by bacteria, as championed by Rosenow, has many supporters. Konjetzny, Puhl and others champion the theory of inflammation, claiming that gastritis is the etiologic agent. This theory has provoked much discussion and disagreement. Bauer, Draper and others have stressed the importance of the constitutional factor, and as corollaries of these one has the concept of vasoneurotic diathesis of Müller and Heimberger, and that of hyperasthenic gastric diathesis of Hurst and Stewart. Last, but not least, the hypothesis concerned with neurogenic factors, with which the name of von Bergmann is most closely identified, has many proponents at present.

Leaving out of consideration uremic, tuberculous and syphilitic ulcers, various causes have been generally recognized which might give rise to peptic ulcer, such as extensive burns of the skin, embolic and thrombotic processes arising from cardiovascular and venous disease and sepsis, chronic lead poisoning, arteriosclerotic disease of the gastric vessels, disease of the central nervous system, and possibly external trauma, malnutrition or states of vitamin deficiency. Obviously, the majority of patients have no such etiologic background.

An adequate hypothesis concerning the cause of ulcer would have to take into consideration many clinical facts, among which the following, in my opinion, should be emphasized: fairly reliable evidence of a distinct rise in the incidence of duodenal ulcer in the last quarter of a century, an observation confirmed by the investigations of Robertson and Hargis, and others; in its duodenal situation the chronic ulcer makes its appearance in the second or third decade of life; in its gastric situation, in the third or fourth decade, and in America at least it is ten times more common in the former situation than in the latter, and in its primary form, affects men from three to four times, and in its recurrent postoperative form, nine times as frequently as it does women; it is a disease confined almost exclusively to civilized people; it may affect several members of the same family or successive generations; a small group of persons may have an ulcer diathesis, that is, a remarkable tendency to uncontrollable recurrent lesions; in some countries, notably Germany, the preponderance of duodenal over gastric ulcer is much less than in this country, and the incidence according to sex may be equal. To all of this must be added the significance of the provocative effect of physical and nervous fatigue, anxiety and emotional states, seasonal variations and gross indiscretions in eating, smoking and drinking.

As regards the etiologic part played by focal infection, much can be said for and against it. It is quite likely that foci frequently can act as the exciting agent, and on occasion can be the sole cause of the chronic lesion, in view of the fact that there is operative a pathogen of low grade virulence delivered to the circulation in a continuous or intermittent fashion over a long period, during which time the resistance of the host may vary greatly. But critics of the hypothesis of infection call attention to the fact that this mode of origin would not throw light on the incidence of the disease, according to age and sex, in this country, or on the great preponderance of duodenal lesions in both sexes; nor would it explain the recurrence of ulcer among patients from whom all tangible foci had been removed. It has also been my repeated experience that a lesion may heal spontaneously, or as the result of either indifferent or intensive treatment may heal peripherally in the presence of extensive foci. Hemorrhagic erosions or acute ulcers reproduced in the rabbit by inoculation of organisms cultured from foci of human beings apparently never develop into the typical chronic lesions. In my opinion, in view of these facts, the hypothesis that infection is the sole cause of the chronic lesion cannot be unreservedly accepted. That certain micro-organisms may prove the exciting agent, and that it is the better part of evidence to remove all obvious foci in the ulcer-bearing patient, cannot so readily be denied.

The results of experimentation on animals may or may not have been fruitful from the standpoint of clearing up the problem of etiology, even though experimental procedures have been brilliant in inception and successful in execution. It is reasonable to presume that the factors giving rise to a chronic visceral lesion in the human subject cannot be approximated in the acute experiment. But the researches of such representative investigators as Mann, Ivy, Dragstedt and their associates, and, more recently, those of Harper, have thrown much light on problems connected with localization of ulcers, the increase in susceptibility of the mucous membrane to ulcerative processes from the pylorus downward, the traumatizing effect of coarse particles of food, the mode of healing and factors that promote or prevent it, and the comparative part played by mechanical and chemical factors and by mucosal susceptibility in the production of a jejunal lesion.

In recent years, many observers have concluded that the neurogenic factor has not been sufficiently stressed. Even a pathologic anatomist, such as Hauser, ascribes to neurogenic influences the most likely origin of ulcers of young adults, and to arteriosclerosis the majority of lesions appearing among patients in the later decades. In this connection, one must also bear in mind the contributing factor already cited, of the chemical influence of the gastric juice, for free acidity is maximal among men in early adult life. It is also appropriate to recall at this time the high incidence of ulcer among patients with brain tumor and exophthalmic goiter, diseases associated with great irritability of the central nervous system, and among persons living under great nervous strain. Sir Thomas Horder regarded the increase in peptic ulcers and certain other conditions as a product of microbic subinfections of the streptococcus variety. He expressed the belief that this is made possible by the stress and strain of a complex civilization, which tends to lower tissue resistance. The pertinent question was raised as to whether the central nervous system might not have some more definite and direct bearing on infection, or rather on immunity, than had hitherto been thought likely. Horder thought it difficult for any physician to avoid the conclusion that the hustle of modern life, the pace at which people go, the nervous strain involved and the expense of spirit entailed have become a large factor in the incidence of disease, and of diseases of a different type from many with which one was formerly acquainted. Alvarez summarized the effects of these nervous influences as follows: Psychic stimuli of a certain type increase the acidity and peptic activity of the digestive juice, and it is possible that smaller amounts of mucus and the other protective fluids of the stomach may be secreted;

ischemia of the tissues may be produced by spasm, either of the blood vessels or of the muscularis mucosae, or of the main muscular wall of the stomach and bowel: emotion can produce pylorospasm, with stagnation of gastric content and resultant increase in acidity.

The attempts in some quarters to belittle the part played by gastric acidity in the symptoms, pathogenesis and treatment of gastroduodenal ulcer seem unwise. The facts that the lesion is confined to tissues bathed by gastric content, that the uncomplicated lesion becomes symptomless and tends to heal more rapidly with adequate neutralization of the free hydrochloric acid, that recurrent lesions are invariably associated with a high concentration of acid and high peptic activity, that experimental research amply confirms the importance of the chemical factor in pathogenesis, are a few among numerous other salient features to discredit such attempts, in my judgment. It is true that some unhealed benign lesions are associated with hypochlorhydria, or even achlorhydria, especially on the basis of former faulty standards of what constituted normal gastric acidity according to age and sex, and on the basis of a single, occasionally repeated, gastric analysis. Even according to the old standards and in the absence of tests of response to histamine, the majority of such ulcer-bearing patients would reveal an adequate acidity when the gastric content was withdrawn at the height of activity of the lesion.

The significance of nervous and mental influences on the motor and secretory functions of the stomach of man has been commented on by Ivy, a fact which he admits makes highly improbable the elucidation of certain problems in connection with ulcer through animal experimentation. Bollman is also impressed with the significance of natural factors that are capable of altering the activity of the stomach, for example, psychic influences, which appear to be much more powerful than many extensive surgical procedures.

On the other hand, the individual capacity to escape the lesion under conditions highly favorable to its formation is worthy of comment. An increasingly large number of patients who exhibited symptoms fairly characteristic of peptic ulcer, coupled with a psychophysiologic make-up similar to that of the ulcer-bearing patient, failed to reveal fluoroscopic or surgical evidence of the lesion, despite the long-standing nature of the complaint. Among patients with ulcer, as well as among those with pseudo-ulcer, surcease from physical, nervous or emotional stress alleviates or dispels the symptoms. Another group of patients may present symptoms or evidence of acute ulceration, pyloric hypertrophy, hemorrhagic erosion, duodenitis, areal gastritis or gastrojejunitis following gastro-enterostomy, but the familiar, calloused ulcer does not develop. In such cases there is apparently increased mucosal resistance; the factor, or factors, contributing to this have not yet been definitely determined.

In summarizing these observations bearing on the etiology, pathogenesis and symptoms, one cannot easily escape the conviction that nervous imbalance, resulting in disturbed parasympathetic and sympathetic interaction on gastric or duodenal motility and secretion, plays an important, if not an exclusive part, in the symptoms at least, and in the genesis of ulcer itself. When an actual lesion does develop under such circumstances, it seems justifiable to predicate a mucosal susceptibility based on inheritance, or acquired through the influence of infection or other sustained irritant resulting in vulnerability of the gastric and duodenal tissue to the heightened corrosive and digestive action of the gastric juice.

GASTRIC CARCINOMA AND GASTRITIS

A dormant interest in the genesis of gastric carcinoma was reawakened by Hurst in an article published in the *Lancet* three years ago, in which he concluded from his observations that 75 per cent of gastric carcinomas have their origin in preexisting chronic, atrophic gastritis. He stated that achlorhydria was present prior to the disease, and was the result of gastritis. Of further interest was the statement that neither he nor a number of fellow practitioners whom he had consulted had ever seen a case of carcinoma in which free hydrochloric acid was present in the early stage and disappeared as the disease advanced; moreover, he had not been able to discover a single record of such a case. In support of these observations on the high frequency of gastritis associated with benign, and possibly with carcinomatous, lesions, in Germany, he quoted in particular the well known researches of Konjetzny, of Kiel. Hurst designated the first group as gastritis-cancer; a second group, comprising 20 per cent, as ulcer-cancer, which represents those cases due to carcinomatous transformation of a simple ulcer and in which free hydrochloric acid is present throughout.

Much as I should like to, I cannot agree with Hurst in his observations concerning the first group, for the reason that chronic atrophic gastritis coexists with carcinoma only rarely in material available to me. Finally, answer to his interesting observations concerning the secretory status of the stomach prior to the advent of the disease and concerning the influence of the disease on such status will be made in the near future on the basis of clinical and experimental evidence. The observations of Konjetzny and others with respect to the increased incidence of gastritis in its various forms in Germany, especially in association with gastric and duodenal ulcer, are beyond dispute and to a certain degree are justification for the more extensive operative procedures advocated by representative German surgeons. Such gastritis under the same circumstances in this country is conspicuous by its absence in the majority of instances. Konjetzny's conclusions concerning the etiologic relationship of the various forms of gastritis to ulcer and carcinoma have been vigorously disputed by eminent pathologists and surgeons. To explain the great difference in the incidence of gastritis in America and in Schleswig-Holstein, for example, can be best done, in my opinion, by comparison of the habits of eating of the citizens of the two regions. The German custom of partaking freely of more generous amounts of stimulating, although usually mild, alcoholic beverages, as well as of irritating food, seems to be the most likely explanation for the condition, and this opinion is shared by numerous German observers.

ROENTGENOLOGY

Prior to the advent of roentgenologic examination of the alimentary tract as an accessory diagnostic procedure, recognition of organic lesions of the stomach, duodenum and colon depended largely on data derived from painstakingly assembled case histories, careful general examination and analysis of gastric content. It was often necessary to resort to observation in a hospital or to exploratory operation in order to clarify the problem. Determination as to whether an ulcer was gastric or duodenal in situation was possible only occasionally, even though such determination was more or less of academic interest. The clinical training of that period has always stood one in good stead, and fortunate is he who has experienced it.

But with the advent of visual methods of diagnosis, it was soon realized that many ulcers and gastric carcinomas, chiefly those without obstruction or palpable mass, had been previously overlooked, especially in the earlier stages of the disease. Kirklin has called attention to the fact that the golden era of roentgenologic development and achievement occurred during the decade from 1910 to 1920. Since that time its advance has been slow and devoid of striking features, and there has been no outstanding innovation, unless progress in the knowledge of how to visualize in relief the interior of the alimentary tube, as exemplified by the work of Forsell, Fischer, Åkerlung, Berg, Weber and others, may be so considered. Those roentgenologists who are fortunate enough to have adequate material at their disposal, and whose diagnoses are checked, as a routine procedure, in the operating room, acquire skill that usually renders their opinion a veritable "necropsy in vivo." Only by such procedure is it possible, with any assurance, to recognize, among other things, benign tumors, congenital anomalies, small diaphragmatic hernias, phytobezoars, carcinomas of small size, concurrent lesions of the stomach and duodenum and some of their complicating factors, pulmonary and osseous metastasis, and to a large degree the inoperability or operability of a malignant lesion by virtue of its position and extent. The effect of failure or success of nonsurgical therapeutic procedure may be more or less accurately gaged by successive roentgenoscopic examination. The necessity of employing a gastroscope or gastrophore will be in inverse ratio to the skill of the roentgenoscopist. However, lesions such as duodenitis, areal gastritis, gastrojejunitis, a small percentage of noncraterous lesions of the anterior and posterior wall, lesions high on the posterior wall of the stomach and lesions of the small bowel at the anastomosis and beyond may occasionally escape detection. It will be seen that conditions are continually arising which make necessary the closest cooperation between roentgenologist and clinician concerning matters not only diagnostic, but therapeutic and prognostic. With the advent of cholecystography, an invaluable procedure, and of recent technical refinements in roentgenologic diagnosis of colonic lesions, a high degree of diagnostic accuracy has been obtained. Only the pancreas, in many respects, still successfully defies us.

Coincident with the impasse reached by the roentgenologist, there has been a fruitful renewal of scientific interest in gastric physiology, especially with reference to secretory and motor function in health and disease; this eventually will result in clearing away many misconceptions, and will lead to greater diagnostic accuracy. Among many other equally important researches, I am at present mindful of the contributions of Gompertz and Vorhaus, Gorham, Bloomfield and his associates, Castle, Rehfuss, McCann, Bockus, Vanzant and Northrup. As a result of these researches, one is more plainly aware of the diagnostic shortcomings of the ordinary test meal, in the absence of retention, blood and abnormal microscopic elements. There is more authentic knowledge concerning such important features as: (1) the volume of gastric secretion, acidity of the gastric juice and gastric motility simultaneously determined by a reliable method under normal and disease conditions; (2) incidence and significance and eventual prognosis in cases of true achlorhydria; (3) the normal range of free acidity in healthy subjects according to decade and sex; (4) more reliable methods for the determination of peptic activity, and (5) a realization of the presence and significance of other constituents of the gastric juice essential to the maintenance of health and life itself.

TREATMENT

In the treatment of a disease such as chronic gastric and duodenal ulcer, in which knowledge of fundamentals is still more or less incomplete, or concerning which there is no universal agreement, a variety of both medical and surgical therapeutic measures naturally exists, and new ones keep springing up as they always have in the past. In the last decade the rise and fall of the much vaunted protein therapy, and, more recently, the inception of the mucin regimen of Fogelson and the pepsin treatment of Glässner, have been witnessed. Although these various procedures have their virtues, which cannot be appraised by immediate results, and should be encouraged, it is not improbable that methods of the present day may eventually appear crude indeed in the light of future progress. Nevertheless, as the result of a summation of experiences, there is general agreement that the dietotherapeutic principles, aside from proper nutritive and digestive qualities, should embody freedom from chemical, mechanical and thermal irritation; that every ulcer-bearing patient should first have the advantage of medical treatment, especially young subjects whose disease is in the early, uncomplicated stage; that not only the local lesion, but the patient as a whole, receive serious consideration; that the treatment be thorough and sustained and that the patient's complete cooperation be secured if possible. It is a common observation that a period of complete mental and physical rest, and proper dietetic measures, alone may suffice to achieve a satisfactory result, if the capacity for healing is inherently great.

In recent years one has seen a growing tendency for closer cooperation between the surgeon and the internist, especially in the larger private and public medical institutions, with respect to supervision of ulcer-bearing patients. Such pooling of diagnostic and therapeutic resources has not only redounded to the mutual scientific edification of surgeon and internist, but to the welfare of the patient, which is all-important. It has made possible more discriminating selection of patients for either medical or surgical treatment, more careful preoperative preparation wherever indicated and more intelligent postoperative care. It has stimulated fruitful clinical and experimental research to determine the factors which predispose to recurrent postoperative lesions, and their possible avoidance, and has furthered the knowledge concerning the probable nature of circumscribed gastric lesions in the absence of histopathologic examination, and their capacity for temporary or permanent healing by adequate nonsurgical treatment.

Accumulating experience attests the need of thoroughness and eternal vigilance in the treatment of chronic peptic ulcer, which applies in any other chronic disease. Equally important is the elimination of physical and nervous fatigue, foci of infection, bad personal habits and proper mental hygiene wherever it is possible. With the cessation of pain and associated disturbances, there is the human tendency to grow careless, and interruption in the process of healing results, or reactivation takes place. Neither the physician nor the surgeon should entertain any conceit concerning the virtues of his particular mode of treatment under all circumstances. The former should be mindful of the invariably permanent effectiveness of timely operative intervention in the case of acutely perforated ulcer, of advanced cicatricial stenosis, of chronic, penetrating, calloused, resistant lesion, or of chronic hemorrhagic lesion, when his own efforts may have proved unsuccessful even in less formidable cases. On the other hand, the surgeon must be mindful of reactivation, or recurrences in more vulnerable situations which, although proportionately few when the patient is in competent hands, may frequently have far more serious import than the lesion for which the operation was originally done: in the past, the clinician's efforts toward possible prevention of these occurrences have more often been discouraged than encouraged.

Although the possibility of successful resection of carcinomatous lesions has slowly increased in the last few decades, such improvement has by no means been commensurate with the improved diagnostic methods and with activities directed to enlightenment of the public concerning this menace. Further progress, in spite of the indifference, procrastination or ignorance of the layman, can be made possible by both physician and specialist through cultivation of "cancer-mindedness" in the presence of those clinical situations with which one is becoming increasingly familiar.

ENDEMIC TYPHUS FEVER OF THE UNITED STATES

HISTORY, EPIDEMIOLOGY AND MODE OF TRANSMISSION

R. E. DYER, M.D.
Surgeon, U. S. Public Health Service
L. F. BADGER, M.D.
Passed Assistant Surgeon
E. T. CEDER, M.D., AND W. G. WORKMAN, M.D.
Assistant Surgeons
WASHINGTON, D. C.

As a background for a proper understanding of the problem of endemic typhus fever of the United States, we shall review briefly some of the salient details of epidemic typhus.

Epidemic typhus is known to have existed in Europe and Asia for many centuries as a disease of the lower strata of society, often afflicting great numbers of people in times of economic stress. It is a disease that has its greatest prevalence in winter and spring and shows a high degree of communicability. There are many recorded instances bearing on this latter point, but it will probably suffice to note that during the epidemic in Serbia, in 1915, the mortality among physicians in attendance in cases of typhus amounted to 36 per cent (Strong [1]).

As early as 1876, Murchison [2] stated that to prevent typhus one must protect the individual from lice.

In 1900, Moczutkowski [3] inoculated himself with typhus blood, and after a period of seventeen days typical symptoms of the disease developed.

In 1903, Cortezo [4] reported that from his experience with typhus in Madrid the disease was transmitted by lice. Nicolle, in 1909,[5] was able to infect monkeys with typhus by inoculating blood drawn from a human being at the height of the disease, and a little later [6] reported the successful transmission of typhus by body lice.

Epidemic typhus has been present in Mexico since shortly after the Spanish Conquest. Carter,[7] after thorough study, stated that "the history of the introduction of typhus into Mexico is definite, we believe, in 1526; surely in 1570." Typhus has been epidemic in the highlands of Mexico many times in the succeeding centuries. It is especially to be noted that Mexican epidemic typhus, like Old World epidemic typhus, apparently is a disease particularly of winter and spring,[8] and when epidemic, shows the high degree of communicability to be expected of a louse-borne disease.

Following Nicolle's demonstration of the susceptibility of monkeys to human blood typhus virus, Anderson and Goldberger [9] and Ricketts and Wilder [10] were able to show that monkeys were susceptible to the virus of Mexican epidemic typhus. Nicolle had been able to transmit typhus to the chimpanzee by injecting blood from human cases and from the chimpanzee to Macacus sinicus, while the American authors were able to transmit typhus fever from human cases to Macacus rhesus. Ricketts and Wilder [11] succeeded in transmitting Mexican epidemic typhus from man to monkey and from monkey to monkey by means of the body louse. This was confirmed by Goldberger and Anderson.[12]

In connection with immigration, both European and Mexican epidemic typhus have been introduced into this country from time to time. Possibly the best known instance of importation from Europe was the epidemic occurring in Philadelphia in 1836, in the study of which Gerhard [13] was able to differentiate the disease from typhoid fever. Armstrong [14] investigated an epidemic of typhus that occurred among the Navajo Indians on the San Juan Reservation in 1920 and 1921. Typhus was apparently brought to this reservation by Mexicans. An interesting instance of the importation of typhus from Mexico was noted by Boyd.[15] A total of eight cases occurred in the Santa Fe Hospital at Fort Madison, Iowa. The original case was in a Mexican who had come to Iowa from El Paso five days before the onset of sickness. A physician, three nurses and a Mexican developed typhus after being in contact with the first patient. Lice were found on both Mexicans.

Without attempting to recount the various occasions on which epidemic typhus has been introduced into the United States, it will be sufficient to state that the disease in this form apparently never gained a permanent lodging in this country.

With this understanding of epidemic typhus, we can proceed to a consideration of a form of typhus fever that is most often referred to as Brill's disease. In

---

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

[1] Strong, R. P.: Internat. J. Pub. Health **1**: 7 (July); 188 (Sept.) 1920.

[2] Murchison, cited by Strong.

[3] Moczutkowski: St. Petersb. med. Wchnschr. **25**: 30, 1900; cited by Plotz, H.; Olitsky, P. K., and Baehr, G.: J. Infect. Dis. **17**: 1, 1915.

[4] Cortezo: Proc. Internat. San. Cong., Paris, 1903, p. 343.

[5] Nicolle, C.: Compt. rend. Acad. d. sc. **149**: 157 (July 12) 1909.

[6] Nicolle, C.; Compte, C., and Conseil, E.: Compt. rend. Acad. d. sc. **149**: 486 (Sept. 6) 1909.

[7] Carter, H. R.: Yellow Fever, Baltimore, Williams & Wilkins Company, 1931.

[8] (*a*) Ricketts, H. T., and Wilder, R. M.: The Typhus Fever of Mexico (Tabardillo), J. A. M. A. **54**: 463 (Feb. 5) 1910. (*b*) Wilder, R. M.: J. Infect. Dis. **9**: 1 (July) 1911.

[9] Anderson, J. F., and Goldberger, Joseph: Pub. Health Rep. **24**: 1941 (Dec. 24) 1909.

[10] Ricketts and Wilder (footnote 8*a*).

[11] Ricketts, H. T., and Wilder, R. M.: The Transmission of the Typhus Fever of Mexico (Tabardillo) by Means of the Louse (Pediculus Vestimenti), J. A. M. A. **54**: 1304 (April 16) 1910.

[12] Goldberger, Joseph, and Anderson, J. F.: Pub. Health Rep. **27**: 29 (March) 1912.

[13] Gerhard, W. W.: Am. J. M. Sc. **38**: 25 (Feb.) 1837.

[14] Armstrong, Charles: Pub. Health Rep. **37**: 685 (March 24) 1922.

[15] Boyd, M. F.: J. Iowa M. Soc. **7**: 45 (Feb.) 1917.

1898, Brill[16] published a study of seventeen cases of a disease occurring in New York City, clinically resembling typhoid fever but without the Widal reaction. From the description of the cases in Brill's original article, and from subsequent findings, we know that these seventeen cases belonged to a mild type of typhus, although Brill did not mention typhus at that time.

In 1910, Brill[17] reported on 221 cases of this disease of "unknown origin," and the following year[18] added 34 cases to his list. In these articles Brill noted the close clinical resemblance of his cases to typhus fever. In attempting to identify this disease, he tried to infect monkeys, using blood drawn from some of his patients. In this attempt he was unsuccessful, and as a result he inclined toward the opinion that the New York disease was "in many respects different at least from the typhus fever of Mexico." In addition to the failure of his experiments on monkeys, Brill was influenced against typhus by two facts which he brought out and which were of great importance. In comparing the cases observed by him with Tunisian (epidemic) typhus and Mexican (epidemic) typhus, Brill made two statements that bear quoting:

> Nevertheless, the differences between the former [Brill's disease] and the latter [epidemic typhus] furnish important differential factors which might indicate respective individualities. There are the periods of the year in which the former [Brill's] presents itself, being most prevalent in the months of the fall, and not in the late winter and spring, which mark the appearance of typhus fever
>
> There are further epidemiological differences; these show that typhus fever is markedly communicable or contagious . . it is a fact that the disease I describe shows almost no evidence of communicability The fact obtrudes itself that, with the single exception noted in my previous contribution, no two cases of this disease have been observed by me in the same family or the same house

In 1915, Brill,[19] recognizing that the disease described by him was in reality typhus fever, stated that some other agent than the body louse must be looked for to explain the origin and spread of this form of typhus

With the discovery of Anderson and Goldberger[20] that Brill's disease was immunologically identical with Mexican typhus, it was apparently generally accepted that Brill's disease must also be louse-borne and dependent on importation from the Old World.

The flea and the bedbug had been considered as possible vectors of Mexican epidemic typhus.

Ricketts and Wilder,[10] from their observations in Mexico, pointed out that

> The season of greatest predominance of typhus in Mexico City [the spring] does not coincide with the period of greatest prevalence of the flea [summer].

They were able to rule out the bedbug as a vector by their experience with

> . . . individual cases which, it would seem, could not possibly have been carried by this insect

In a later article, these authors[21] noted that

> . . . if the bedbug transmitted typhus we should expect the disease to be a "house disease", but cases are constantly occurring which it is impossible to trace to any "typhus house"

Anderson and Goldberger,[22] on epidemiologic observations, were also able to absolve the flea and the bedbug from blame in the transmission of Mexican epidemic typhus. The observations of these authors[12] were summed up in the following words:

> All the important features of the epidemiology of typhus are satisfactorily explained on the basis of its transmission by the body louse.

The lack of epidemiologic evidence against the flea and the bedbug and the failure of attempts at experimental transmission of Mexican epidemic typhus by these insects[21] was apparently generally thought to eliminate these arthropods as possible vectors of Brill's' disease, or the endemic form of typhus fever.

Friedman[23] compared cases of Brill's disease with cases of typhus seen by him in Manchuria, and concluded that the diseases were identical clinically.

Following the recognition of Brill's disease as typhus fever, Paullin, in 1913,[24] reported six cases of Brill's disease which had occurred in Atlanta, Ga., in the months of September, October and November. In 1914, Newell and Allan[25] reported four cases of typhus fever in Charlotte, N. C. In 1916, McNeil[26] reported five cases of endemic typhus occurring in Galveston, Texas. Two of the patients were residents of Galveston, and in none could any history of probable exposure be elicited. Allan[27] reported additional cases of endemic typhus occurring in North Carolina. In this article he noted that there were no secondary cases, and that his patients were almost all of good circumstances with no evidence of infestation by lice. He also noted that he had never observed body lice on patients during fifteen years of practice in Charlotte. He expressed himself as convinced that the transmission of endemic typhus was in no way dependent on the body louse.

In 1923, Maxcy and Havens[28] reported a series of cases with a positive Weil-Felix reaction. These cases occurred during an epidemic of dengue fever, but the authors were able to differentiate them from dengue on clinical grounds. They reported eleven cases occurring in cities and towns of southern Alabama during the summer, fall and early winter. They noted that all the cases, with one exception, occurred in persons of cleanly habits and good circumstances, and that none showed any evidence of, or gave any history of, louse infestation. No source of infection with typhus could be traced. They considered that on clinical and serologic grounds their cases were most probably Brill's disease, although they were frankly puzzled by the same two epidemiologic points that had puzzled Brill thirteen years earlier—the lack of communicability and the seasonal distribution.

In 1925, Sinclair and Maxcy[29] reported cases of mild typhus which occurred in the small towns along the Texas-Mexican border in the summer of 1924. These cases corresponded closely in symptom complex with Brill's description of mild typhus. Evidence of communicability was present in the histories of six of the twenty patients examined by the authors. Body lice were not found in association with any of the cases, although careful search was made. The head louse was found to be quite common and, in view of the experimental infection of, and the possible transmission of Mexican typhus by, the head louse by Goldberger and Anderson,[12] the authors concluded that the head louse might be the vector responsible for the transmission of these mild cases in the Rio Grande Valley. During their study the authors brought out the fact that cases of mild typhus had been observed by Mexican physicians in and about the city of Monterey and the Valley States of Coahuila, Nuevo Leon and Tamaulipas. During the next few years Maxcy made an extensive study of endemic typhus in the southeastern part of the United States. In 1926,[30] he reported on 114 cases, in 41 of which he made the examination himself. His clinical description corresponds closely to Brill's description of the cases observed by him in New York City. Maxcy at this time noted that the epidemiology of the disease observed in the southern United States presented certain differences from that of Old World typhus, which were incompatible with man to man transfer by lice. In the same year, Maxcy[31] identified the disease in the southeastern part of the United States as typhus on the basis of its clinical identity with Brill's disease, the presence of the Weil-Felix reaction, the work of Anderson and Goldberger identifying the virus of Brill's disease with that of Mexican typhus, and his success (Maxcy's) in transmitting the disease to a rhesus monkey from a case in Savannah and to guinea-pigs from cases in Montgomery. He noted a seasonal distribution similar to that noted by Brill for the disease in New York City. Brill had noted that 70 per cent of his cases occurred from June to November, while over 80 per cent of Maxcy's cases occurred in the latter half of the year. Maxcy further noted that the disease did not select the poor and uncleanly and was not associated with lousiness. He found that there was a lack of traceable relationship between cases, and an extremely low secondary familial rate. Hone,[32] in 1922, described a series of cases resembling typhus fever which occurred near Adelaide, Australia. Clinically, these cases were similar to Brill's and were in men who were engaged in handling wheat. Maxcy, in his epidemiologic analysis, noted that those engaged in the handling of foodstuffs in the southeastern United States seemed to incur an increased risk of infection. From these observations, Maxcy suggested that there existed an animal reservoir of the disease other than man. As the most likely reservoir he suggested rats and mice, and as vectors some blood-sucking arthropod which would feed both on rodents and on man, such as fleas, mites or possibly ticks. Maxcy[31] suggested that endemic typhus might be carried over between epidemics in such a reservoir, occasionally being transmitted to man, and in its epidemic form being passed from man to man by the body louse. Nicolle and Lebailly[33] reported that white rats showed no fever following inoculation with Old World typhus virus, but that the virus could be recovered from the brains of these rats from ten to thirteen days later. Virus could be successfully transmitted from rat to rat for several generations. Kuczynski[34] noted that white rats produced agglutinins for B. proteus X_{19} following inoculation with epidemic typhus virus, and Mooser[35] reported a febrile reaction in white rats inoculated with Mexican typhus and that such rats developed a positive Weil-Felix reaction. Maxcy[36] found that white rats were susceptible to endemic typhus virus, and he found Rickettsia in preparations made from the tunica vaginalis of these infected animals.

---

[16] Brill, N E New York M J **67:** 48 (Jan 8), 77 (Jan 15) 1898

[17] Brill, N E Am J M Sc **139:** 484 (April) 1910

[18] Brill, N E Am J M Sc **142:** 196 (Aug) 1911.

[19] Brill, N E M Rec **88:** 914 (Nov 27) 1915

[20] Anderson, J F, and Goldberger, Joseph Pub Health Rep **27:** 149 (Feb 2) 1912

[21] Ricketts, H T, and Wilder, R M Further Investigation Regarding the Etiology of Tabardillo, Mexican Typhus Fever, J A M. A. **55:** 309 (July 23) 1910

[22] Anderson, J. F, and Goldberger, Joseph. Pub. Health Rep **25:** 177 (Feb 18) 1910

[23] Friedman, G A Brill's Symptom Complex, Typhus Fever, Manchurian Typhus, Arch Int Med **8:** 427 (Oct) 1911

[24] Paullin, J E South M J **6:** 36 (Jan) 1913

[25] Newell, L B, and Allan, William South M J. **7:** 564 (July) 1914

[26] McNeil, H L Texas State J. Med **12:** 188 (Aug) 1916

[27] Allan, William South Med & Surg **85:** 65 (Feb) 1923

[28] Maxcy, K F, and Havens, L C. Am J Trop Med **3:** 495 (Nov) 1923

[29] Sinclair, C G, and Maxcy, K F. Pub Health Rep **40:** 241 (Feb 6) 1925

In 1928, Blatteis[37] published a study of 138 cases of endemic typhus occurring in New York City between October, 1913, and August, 1927. He noted that half of these cases occurred in the four months June to October, the other half occurring during the remaining eight months. The author thought it quite improbable that the mode of transmission by the body louse is the same in endemic as in epidemic typhus.

Rumreich, Dyer and Badger[38] noted close association with rats in 78 per cent of their cases of endemic typhus.

In addition to the epidemiologic differences between Brill's disease, or endemic typhus, and epidemic typhus of the Old World, a difference has been noted in the reaction of guinea-pigs to these two types of typhus. In 1917, Neill[39] reported observations made by him on guinea-pigs which had been inoculated with strains of Mexican typhus virus. The strains of virus studied by him were obtained by Dr. Edward Francis from two cases of typhus originating in the highlands of Mexico. Neill noted that male guinea-pigs that had been inoculated intraperitoneally with these typhus strains developed a definite redness and swelling of the scrotum at the time of the febrile reaction. In the animals killed at the height of the scrotal and febrile reactions, definite hemorrhages were found in the cremasteric fascia just external to the parietal and visceral laminae of the tunica vaginalis. Sections of the testicles and epididymis showed vascular lesions, characterized by degeneration of the intima, proliferation of the endothelium and connective tissue of the vessel walls with pronounced perivascular infiltration, chiefly with cells of the lymphocyte series and of endothelial leukocytes. Neill found the changes particularly abundant in the small vessels. Thromboses were occasionally observed in the early lesions. Maxcy[40] reported that he had found the same lesions in male guinea-pigs inoculated with the endemic typhus of the Southern United States —an observation that Allan[41] confirmed. Zozaya[42] noted that many of those who have worked with Mexican typhus strains established in guinea-pigs have failed to note scrotal involvement. He suggested that this was probably due to the fact that these authors were studying typhus in epidemic form, whereas the lesions are almost exclusively found after inoculation with endemic typhus strains. Like Maxcy, he was of the opinion that endemic typhus virus, although transmitted by an agent other than the louse, can be carried on in epidemic form by the louse once a case has occurred in a human being. Zozaya further stated that in his opinion in endemic typhus two viruses were often present, and that the virus causing the scrotal reaction in guinea-pigs was not of typhus origin. That this scrotal reaction is a rarely observed reaction in guinea-pigs inoculated with strains of epidemic typhus virus recovered in the Old World is attested by many

---

30. Maxcy, K. F.: Pub. Health Rep. **41**: 1213 (June 18) 1926.
31. Maxcy, K. F.: Pub. Health Rep. **41**: 2967 (Dec. 24) 1926.
32. Hone, F. S.: M. J. Australia **1**: 1 (Jan. 7) 1922.
33. Nicolle, C., and Lebailly, C.: Compt. rend. Acad. d. sc **168**: 800 (April 14) 1919.
34. Kuczynski, M. H.: Die Erreger des Fleck- und Felsenflebers, Biologische und Pathogenetische Studien, Berlin, Julius Springer, 1927.
35. Mooser, Herman: J. Infect. Dis. **44**: 186 (March) 1929.
36. Maxcy, K. F.: Pub. Health Rep. **44**: 1935 (Aug. 9) 1929.
37. Blatteis, S. R.: M. Clin. North America **11**: 1099 (Jan.) 1928.
38. Rumreich, A.; Dyer, R. E., and Badger, L. F.: Pub. Health Rep. **46**: 470 (Feb. 27) 1931.
39. Neill, M. H.: Pub. Health Rep. **32**: 1105 (July 13) 1917.
40. Maxcy, K. F.: Am. J. Path. **4**: 653 (Nov.) 1928.
41. Allan, W.: Am. J. Path. **4**: 653 (Nov.) 1928.
42. Zozaya, J.: J. Infect. Dis. **46**: 18 (Jan.) 1930.

workers. Welbach, Todd and Palfrey,[43] in describing the reaction of guinea-pigs to Old World strains of epidemic typhus virus, stated that they have not observed "reactions as striking as those described by Neill," while Olitsky and McCartney,[44] in reporting a skin reaction in guinea-pigs inoculated with Old World virus, gave a reference to Neill's work but made no observation of the occurrence of any involvement of the genitalia in the animals studied by them. That Neill's scrotal reaction does occur in certain strains of Old World epidemic typhus is attested by Pinkerton,[45] who stated that in guinea-pigs inoculated with the Wolbach strain of Old World virus he had noted scrotal reactions "entirely comparable to that seen in American typhus in four successive transfers, but it practically disappeared again in the 5th."

Nigg and Landsteiner,[46] in working with the Nicolle strain of Tunisian epidemic virus, noted that it "produced, although irregularly, scrotal inflammation of slight to moderate intensity, indistinguishable from that produced by the Mexican type." At the National Institute of Health we have maintained the Breinl strain of Old World epidemic typhus virus for several years and have occasionally noted a moderate scrotal reaction. In attempting to perpetuate this reaction in guinea-pigs, we have failed except in one instance. In the instance referred to, a guinea-pig killed on the eighth day of fever, occasioned by inoculation with Breinl virus, showed testicles covered with exudate and hemorrhages beneath the tunica. The testicles were washed in salt solution, and the washings used to inoculate other guinea-pigs. These animals, and over 80 per cent of the 154 guinea-pigs used in the succeeding 38 transfer generations, showed scrotal reactions typical of those noted in guinea-pigs inoculated with endemic typhus virus.

In 1910, Ricketts and Wilder,[47] on examining blood smears of patients with typhus fever (Giemsa strain), found small bipolar rods. They also found polar-staining organisms occasionally in ". . . the feces and intestinal contents of 'normal' lice, whereas they are present almost constantly, and often in large numbers, in similar material from 'infected' individuals (lice)."

Mooser,[48] in 1928, confirmed Neill's observations on the occurrence of the scrotal and testicular reaction in guinea-pigs inoculated with Mexican typhus and also reported the finding of diplobacilli (Rickettsia) in smears made from the tunica vaginalis of guinea-pigs showing the Neill reaction. This observation brought additional evidence of the association of the testicular lesions with typhus and of the probable rôle of Rickettsia in causation. Rickettsia in smears made from guinea-pigs inoculated with endemic typhus virus has been observed by Maxcy,[49] and from guinea-pigs inoculated with European virus by Pinkerton.[50]

Having in mind the repeated observations of the various authors cited previously, on the summer and fall incidence of endemic typhus in contrast with the winter and spring incidence of epidemic typhus, the known susceptibility of the rat to the disease, and the fact that endemic typhus occurs principally during the season when rat fleas are most prevalent, Dyer, Rumreich and Badger[51] trapped rats at three typhus foci in Baltimore. From a mixture of two species of fleas taken from these rats (Xenopsylla cheopis and Ceratophyllus fasciatus), the authors recovered the virus of endemic typhus. Endemic typhus virus was also recovered from a mixture of fleas taken from rats trapped at an endemic typhus focus in Savannah (Xenopsylla cheopis and Leptopsylla musculi).[52]

Several cases of endemic typhus had occurred on premises in the immediate vicinity of food handling establishments in Baltimore in the late summer and fall of 1930. On these premises evidence of heavy infestation with rats was observed. Rats were trapped at this place, and from them and from a rat nest fleas were recovered. Injection of an emulsion of these fleas into guinea-pigs resulted in establishing a strain of endemic typhus. Successful results followed the injection of emulsions of fleas taken from rats caught at two other typhus foci in Baltimore. A few weeks later rats were trapped at a location in Savannah, Ga., where two cases of endemic typhus had recently occurred. Rat fleas from these rats were injected into guinea-pigs, and endemic typhus developed in these animals. Both the Baltimore and Savannah flea strains were studied in laboratory animals and found to be identical with the strain of endemic typhus isolated by Maxcy[49] from a human case of the disease in Wilmington, N. C. In addition, it was noted that complete cross-immunity existed between the strains recovered from fleas and the Breinl strain of Old World epidemic typhus virus.

Mooser, Castaneda and Zinsser[53] studied an epidemic of Mexican typhus which occurred in Mexico City in April and May, 1931. During this epidemic rats were trapped at Belem Prison, their brains emulsified and injected into guinea-pigs. In two instances, the authors reported the recovery of the virus of Mexican typhus. Rather surprisingly, fleas taken from the same catch of rats from which one of their strains of Mexican typhus was isolated apparently did not contain the virus.[54]

Kemp[55] reported the recovery of the virus of endemic typhus from rat fleas taken from rats trapped at a typhus focus in Texas.

Dyer, Ceder, Rumreich and Badger[56] reported the experimental infection of fleas (X. cheopis) by feeding them on white rats infected with endemic typhus. In this experiment noninfected fleas were fed on typhus-infected rats for about two weeks. Endemic typhus virus was recovered from emulsions of these fleas. The authors also made a preliminary report of the experimental transmission of the virus of endemic typhus from rat to rat by Xenopsylla cheopis. Castaneda[57] reported the successful experimental infection of Ctenocephalus canis and Xenopsylla cheopis with the virus of Mexican typhus. Rickettsia was noted in smears made from his infected fleas, and from emulsions of other fleas which had fed on typhus infected rats he was able to recover the virus in animals.

---

[43] Wolbach, S. B.; Todd, J. L., and Palfrey, F. W.: Internat. J. Pub. Health **1:** 211 (Sept.) 1920.

[44] Olitsky, P. K., and McCartney, J. E.: J. Exper. Med. **39:** 331 (March) 1924.

[45] Pinkerton, H.: J. Exper. Med. **54:** 181 (Aug.) 1931.

[46] Nigg, C., and Landsteiner, K.: J. Exper. Med. **55:** 563 (April) 1932.

[47] Ricketts, H. T., and Wilder, R. M.: The Etiology of the Typhus Fever (Tabardillo) of Mexico City, J. A. M. A. **54:** 1373 (April 23) 1910.

[48] Mooser, Herman: Reaction of Guinea-Pigs to Mexican Typhus (Tabardillo), J. A. M. A. **91:** 19 (July 7) 1928.

[49] Maxcy, K. F.: Pub. Health Rep. **44:** 589 (March 15) 1929.

[50] Pinkerton, H.: J. Infect. Dis. **44:** 337 (May) 1929.

[51] Dyer, R. E.; Rumreich, A., and Badger, L. F.: Pub. Health Rep. **46:** 334 (Feb. 13) 1931.

[52] Dyer, R. E.; Rumreich, A., and Badger, L. F.: The Typhus-Rocky Mountain Spotted Fever Group in the United States, J. A. M. A. **97:** 589 (Aug. 29) 1931.

[53] Mooser, Herman; Ruiz Castaneda, M., and Zinsser, Hans: Rats as Carriers of Mexican Typhus Fever, J. A. M. A. **97:** 231 (July 25) 1931.

[54] Mooser, Herman; Ruiz Castaneda, M., and Zinsser, Hans: J. Exper. Med. **54:** 567 (Oct.) 1931.

[55] Kemp, H. A.: Endemic Typhus Fever: Rat Flea as a Possible Vector, J. A. M. A. **97:** 775 (Sept. 12) 1931.

[56] Dyer, R. E.; Ceder, E. T.; Rumreich, A., and Badger, L. F.: Pub. Health Rep. **46:** 1869 (Aug. 7) 1931.

[57] Ruiz Castaneda, M.: Med., Mexico **11:** 695 (Aug. 10) 1931.

Dyer, Ceder, Lillie, Rumreich and Badger[58] reported in detail the successful transmission of endemic typhus from rat to rat by means of the rat flea (X. cheopis). In these experiments, noninfected fleas were allowed to feed on infected white rats. The fleas were then placed on noninfected rats. Two weeks later the originally noninfected rats were killed and emulsions of their brains were inoculated into guinea-pigs. The guinea-pigs developed endemic typhus following the inoculation. The authors were also able to recover endemic typhus virus from the feces of infected fleas. They[59] reported their failure to recover typhus virus from fleas hatched from the eggs of typhus-infected fleas. They also reported that they had failed to transmit typhus by direct feeding of infected fleas on normal guinea-pigs. In these experiments the infected fleas were confined in test tubes which were closed by stretching chiffon over the open ends. The fleas fed readily through the chiffon, which kept the feces from contact with the skin, but in no instance did the guinea-pigs develop evidence of typhus, nor were they later found to be immune to subsequent injections of typhus virus. This suggested to the authors that the probable mechanism by which the flea could transmit typhus would be through the scratching or rubbing of infected flea feces into the skin. It was found by Dyer, Ceder, Workman, Rumreich and Badger[60] that endemic typhus virus remained virulent in infected fleas for at least fifty-two days after the last infective feeding. They also reported that they had succeeded in transmitting endemic typhus to guinea-pigs by rubbing and scratching crushed infected fleas or infected flea feces into the shaved skin of the abdomen. Such inoculation of fleas or feces resulted in atypical, or inapparent, infections in the guinea-pigs, but the virus was recovered readily from the brains and spleens of these animals.

Mooser and Castaneda[61] examined normal fleas (Leptopsylla musculi, Xenopsylla cheopis, Ceratophyllus fasciatus and Ctenocephalus felis) and failed to find Rickettsia. On examination of other fleas a few days after they had fed on rats infected with Mexican typhus, large numbers of Rickettsia were found, indicating to the authors that a multiplication of typhus virus had taken place in the flea. These authors made a histologic study of infected fleas and were able to demonstrate Rickettsia within the epithelial cells of the stomach and within the cells of the malpighian tubules. They noted that Rickettsia was scarce in the stomach contents of fleas, and explained this fact by the presence of a peritrophic membrane covering the cylindric epithelium of the stomach. As this membrane extends to a point immediately proximal to the union of the malpighian tubules with the intestine they were of the opinion that the number of Rickettsia eventually excreted in flea feces must depend largely on the presence of infection in the malpighian tubules. They found that the salivary glands, salivary ducts and the reproduction organs were free of Rickettsia. The absence of infection in the salivary structures may explain the lack of success of Ceder, Dyer, Rumreich and Badger in their attempts to transmit typhus by the bite of infected fleas.[59]

In order to determine if a multiplication of virus takes place in fleas infected with endemic typhus, or if the flea only hoards the virus and is in reality a mechanical vector, Dyer, Workman, Ceder, Badger and Rumreich[62] allowed noninfected fleas (Xenopsylla cheopis) to feed on infected white rats for twenty-four hours. At daily intervals they then injected guinea-pigs intraperitoneally with graded dilutions of a suspension of the ground fleas. They found that for two days after the infective feeding suspensions carrying $\frac{1}{2}$ of a flea did not contain enough virus to infect a guinea-pig, while at the end of three days suspensions carrying $\frac{1}{32}$ of a flea contained sufficient virus to infect a guinea-pig. Further titration of the virus at the end of eleven, twenty and forty days after the infective feeding showed that an infecting dose for a guinea-pig might be contained in as little as $\frac{1}{128,000}$ of a flea. The length of the incubation period in the guinea-pig became progressively shorter until the fifth or sixth day of residence of the virus in the flea. The incubation period remained approximately the same from that time until twenty days after the infective feeding of the fleas, but showed a definite lengthening in guinea-pigs inoculated with fleas forty days after their infective feeding.

The same authors[63] reported the experimental transmission of endemic typhus from rat to rat by Ceratophyllus fasciatus. In this experiment a colony of these fleas was established and proved to be noninfected. The fleas were then allowed to feed on white rats which were infected with endemic typhus. The fleas were removed from the infected rats and placed on noninfected white rats. Two weeks later the virus of endemic typhus was recovered from the spleen of one of the originally noninfected rats.

Recently we have recovered the virus of endemic typhus from the brain of a wild rat trapped at a typhus focus in Savannah, Ga.

From the foregoing facts, it would appear definitely established that the disease typhus has two manifestations known at present: the first and better known, a louse-borne disease of great communicability from person to person in times of overcrowding of unclean populations and characterized by its tendency to the formation of epidemics; the second, a disease primarily of rodents which is apparently transmitted from rat to man by rat fleas. This manifestation of typhus seemingly is not transmitted from man to man and is therefore characterized by the tendency to remain endemic.

That the endemic disease once it has occurred in a lousy population may, by transfer through lice, become epidemic in character (as suggested by Maxcy[31] and Zozaya[42]) is a possibility that must be borne in mind. Some indication that this may be true is suggested by Mooser's[64] work in successfully infecting rat fleas with epidemic typhus (Nicolle's strain) and the development of the scrotal reaction characteristic of flea-borne typhus in male guinea-pigs that were inoculated with emulsions of these infected fleas.

That endemic typhus may be kept alive in nature by the rat louse (Polyplax spinulosus) as well as by rat fleas is shown by the success of Mooser, Castaneda and Zinsser[54] in transmitting Mexican typhus fever from rat to rat by this arthropod.

---

[58] Dyer, R. E.; Ceder, E. T; Lillie, R D.; Rumreich, A., and Badger, L. F.: Pub. Health Rep. **46**: 2415 (Oct. 9); 2481 (Oct. 16) 1931.

[59] Ceder, E. T.; Dyer, R. E.; Rumreich, A., and Badger, L. F.: Pub. Health Rep. **46**: 3103 (Dec. 25) 1931.

[60] Dyer, R. E.; Ceder, E. T.; Workman, W. G.; Rumreich, A., and Badger, L. F.: Pub. Health Rep. **47**: 131 (Jan. 15) 1932.

[61] Mooser, Herman, and Ruiz Castaneda, M.: J. Exper. Med. **55**: 307 (Feb.) 1932.

[62] Dyer, R. E.; Workman, W. G.; Ceder, E. T.; Badger, L. F., and Rumreich, A.: Pub. Health Rep. **47**: 987 (April 29) 1932.

[63] Dyer, R. E.; Workman, W. G.; Ceder, E. T.; Badger, L. F., and Rumreich, A.: Pub. Health Rep. **47**: 931 (April 22) 1932.

[64] Mooser, Herman: Med., Mexico **11**: 891 (Nov. 25) 1931.

That typhus virus may remain virulent in other arthropods is shown by Castaneda and Zinsser,[65] who were successful in infecting bedbugs by feeding and by intracelomic injection, and ticks[66] by the latter method. Mooser and Dummer[67] were successful in infecting body lice by rectal inoculation with endemic typhus virus but failed to infect several species of ticks by allowing them to feed on typhus-infected guinea-pigs. Dove and Shelmire[68] have apparently succeeded in infecting tropical rat mites (Liponyssus bacoti) by allowing them to feed on typhus-infected rats. Some of their experiments indicate that they were successful in transmitting endemic typhus by the bite of this mite, while in two experiments Mooser and Castaneda[61] failed to find Rickettsiae or recover typhus virus from these mites after they had been fed on typhus-infected rats. Whether the seasonal prevalence of this mite is such as to fit into the epidemiologic picture is not known. No epidemiologic facts have been uncovered in studies on endemic typhus in this country which would incriminate either the tick or the bedbug. Some confusion as to the tick existed until the past year, when it was pointed out by Badger, Dyer and Rumreich[69] and by Rumreich, Dyer and Badger[38] that some cases occurring in the eastern United States and diagnosed in past years as endemic typhus, were in reality a type of Rocky Mountain spotted fever presumably transmitted by the common tick of that region (D. variabilis).[70]

The epidemiologic features of endemic typhus—seasonal prevalence, lack of communicability, association with food handling and rat harbors, and lack of evidence against the louse—are all readily explained by the rat flea (X. cheopis). As has been noted, the rat flea (Ceratophyllus fasciatus) will also transmit typhus under experimental conditions, but the period of greatest prevalence of this flea apparently does not correspond to the period of incidence of endemic typhus as closely as does the prevalence of X. cheopis. It is thought at present that the rat flea (X. cheopis) is the common vector of endemic typhus in this country. That this may be true also for other parts of the world is shown by reports of what is apparently a mild form of typhus in other countries. In particular, it may be mentioned that Pecori[71] and Alessandrini[72] have reported a condition resembling Brill's disease which occurs in Rome in the summer and is not transmissible from man to man.

Dr. Copanaris,[73] minister of health of Greece, has stated that a type of mild typhus, occurring principally in the summer and fall, has been present in Greece for several years.

Lepine[74] reported that he has observed each year a number of cases of typhus occurring in Athens and Pireus in the absence of an actual epidemic. From the brains of rats trapped at these places he recovered a virus which is apparently similar to, or identical with, endemic typhus virus. In a more recent publication, Lepine, Caminopetros and Pangalos[75] reported the recovery of a similar virus from fleas (Xenopsylla cheopis and Leptopsylla musculi) taken from wild rats. These authors noted that the virus recovered from fleas produced in male guinea-pigs the scrotal lesions that are characteristic of Mexican typhus and endemic typhus of the United States.

ABSTRACT OF DISCUSSION

Dr. Bedford Shelmire, Dallas, Texas: It is conservatively estimated that well over 500 cases of endemic typhus fever have occurred in eastern Texas during the past three years. The seasonal and occupational incidence of the disease in this section are comparable to that reported by Dr. Dyer and his associates; yet our strain of endemic typhus seems more virulent than the strain encountered along the Atlantic seaboard. Our death rate was 4.5 per cent in 135 cases of the disease, 44 of which came under the observation of Dr. Dove and myself and the remaining 91 were reported by 21 physicians of eastern Texas during the last four months of 1931. It is not improbable that this increased virulence is due to the transmission of the typhus virus in this area by a different blood-sucking parasite. It is our belief that the virulence of the virus is stepped up by passage through the tropical rat mite. Such a difference in virulence is comparable to the two recognized types of Rocky Mountain spotted fever. It occurred to us that rats might become infected in a given area by eating typhus-infected parasites with which they were infested rather than from the bites of these parasites. When rats were experimentally infested with infected mites it was found impossible to prevent the rodents from eating the ectoparasites. As there is a known protozoan disease of rats transmitted in this manner, this route of infection cannot be overlooked. In three instances we were able to cause in these rodents a disease simulating typhus by feeding organs of guinea-pigs infected with the eastern Texas strain of the disease. In association with Dr. Kemp, feeding experiments were entirely negative when the Wilmington strain of the virus was employed. If endemic typhus fever is transmitted from rat to man through the bite of some blood-sucking parasite of these rodents, one would expect a momentary increase in the incidence of typhus following rat-poisoning campaigns. When rats are killed, their ectoparasites are forced to take blood of other warm-blooded animals or of human beings. A momentary increase was recently noted in eastern Texas following a rat-poisoning campaign, which, rodent control experts estimated, resulted in the destruction of more than a million rats.

Dr. H. A. Kemp, Dallas, Texas: In work in endemic typhus in northern Texas in the past two years I have observed a complete agreement with the significant observations in the paper just read. It is hoped that it may be of value to emphasize some of the things that have been observed. From a study of cross-immunity carried out with the Texas strain against the Wilmington strain, which was furnished through the courtesy of Dr. Dyer, there was found what I believe to be a complete cross-immunity between the virus that exists in northern Texas and the strain called the Wilmington strain of endemic typhus. Attempts have been made now for over a year to establish the virus by laboratory means and at this time I am sorry to say we have failed completely to grow this virus on any of the laboratory mediums or any of the extraordinary laboratory mediums, even the medium proposed by Dr. Kendall recently. It has also been found that a medium which is suitable for growing Bacterium tularense does not support the growth of this virus to the extent to which it grows on culture medium. In an effort to ascertain whether or not the virus was transmissible from rat to rat by any other means than through insects, rats were fed fresh material from infected guinea-pigs and at intervals of one to two, three and four weeks later these rats were killed and their brains and spleens were pooled and injected into guinea-pigs. None

---

65. Ruiz Castaneda, M., and Zinsser, Hans: J. Exper. Med. **52**: 661 (Nov.) 1930.

66. Zinsser, Hans, and Ruiz Castaneda, M.: J. Exper. Med. **54**: 11 (July) 1931.

67. Mooser, Herman, and Dummer, C.: J. Infect. Dis. **46**: 170 (Feb.) 1930.

68. Dove, W. E., and Shelmire, Bedford: Tropical Rat Mites, Liponyssus Bacoti Hirst, Vectors of Endemic Typhus, J. A. M. A. **97**: 1506 (Nov. 21) 1931.

69. Badger, L. F.; Dyer, R. E., and Rumreich, A.: Pub. Health Rep. **46**: 463 (Feb. 27) 1931.

70. Dyer, R. E.; Badger, L. F., and Rumreich, A.: Pub. Health Rep. **46**: 1403 (June 12) 1931.

71. Pecori, G.: Ann. d'ig. **39**: 1 (Jan.) 1929.

72. Alessandrini, A.: Policlinico (sez. prat) **36**: 151 (Feb. 4) 1929.

73. Copanaris: Personal communication.

74. Lepine, P.: Compt. rend. Acad. d. sc. **194**: 401 (Jan. 25) 1932.

75. Lepine, P.; Caminopetros, J., and Pangalos, G.: Compt. rend. Soc. de biol. **109**: 710 (March 11) 1932.

of these guinea-pigs developed typhus, nor were they immune when tested later with an established strain of the virus. In other words, I feel that the insect vector is very probably the only means of transmission. A year ago an attempt was made at active immunity in endemic typhus by means of formolizing the tunica vaginalis (infected) according to the method of Zinsser. In a report recently published my co-workers and I stated that such a vaccine would immunize guinea-pigs for a period of three months against endemic typhus, against at least 300 times enough to infect them, but we found that such material did not retain its antigenic qualities even though kept in an icebox at a temperature of 9 C. for longer than thirty days.

SUSTAINED ARTIFICIAL FEVER IN THE TREATMENT OF INTRACTABLE ASTHMA

PHYSIOLOGIC AND THERAPEUTIC CONSIDERATIONS

SAMUEL M. FEINBERG, M.D.
STRAFFORD L. OSBORNE, B.P.E.
AND
MEYER J. STEINBERG, M.D.
CHICAGO

It has been observed repeatedly in the past that acute infections with fever exert a beneficial influence on chronic diseases, such as malignant conditions, dementia paralytica and others. We were especially interested in the observation that in chronic asthma and other allergic diseases the advent of an intercurrent infection, such as scarlet fever, pneumonia or an abscess, usually resulted in a temporary improvement or remission. This has been observed by others [1] and is rather common knowledge among those who treat patients with allergic diseases.

It occurred to one of us (S. M. F.) that the production of fever by artificial means might be of benefit in the treatment of chronic asthma and other allergic conditions. We were aware, of course, that there were a number of methods in use for the production of nonspecific therapy usually accompanied by febrile reactions. The intravenous injections of typhoid vaccine, intramuscular injections of milk and other proteins, injections of sulphur, use of malarial blood and similar methods were all given consideration and rejected. We felt that they were dangerous, especially in allergic patients, and that the duration and height of fever and the undesirable reactions were uncontrollable.

At that time we were not sure whether the fever itself was the active agent or whether the actual infection or the shock produced was responsible for the beneficial effect. In dealing with allergic patients we were especially anxious to evolve a method not entailing the use of foreign proteins. We were therefore led to the consideration of attempting to produce fever by physical means. Fever may be produced by hot baths,[2] hot air and electric blankets, but we rejected the possibility of using these methods because of the danger and lack of control connected with them.

We finally adopted the method used by Neymann and Osborne in the treatment of dementia paralytica.[3] Briefly, it consists of raising the body temperature by a high frequency current. We have presented earlier reports of this work,[4] and this paper deals with a larger number of patients and more extended observations.

TECHNIC

A high frequency current generator of low voltage having a capacity of 10 amperes is used. This amperage is sufficient for two patients, arranged in series (fig. 1), to be treated at the same time, and results in a material saving of time. A low voltage generator is chosen because the probability of electrical burns is materially lessened. Neymann fenestrated electrodes [5] are used with the entire trunk sandwiched between them and held in place by a canvas jacket made especially for this purpose.

Thorough heat insulation is a most essential factor in securing a satisfactory temperature curve. A method was previously described by us [6] but has now been abandoned for a simpler and far more effective arrangement. None of our patients could lie down in bed but had to recline on a back rest in the sitting or semisitting position. This made it difficult to prevent loss of heat around the shoulders, particularly when the patient became restless, and so the thought occurred to one of us (S. M. F.) that a specially prepared heat insulating bag might better serve our purpose. Such a treatment bag, designed by us (fig. 1) and made by a well known manufacturer of electrotherapeutic apparatus, is now used. The entire bag is waterproofed and so can be quite clean and sanitary. The patient is wrapped in two layers of bath blankets to absorb the perspiration, and the entire bag is closed by means of a hookless fastening arrangement (zipper type) with suitable openings for electrode leads and thermometer readings. Thus the patient is entirely enclosed with the shoulders and neck thoroughly insulated from loss of heat, no matter how restless he might become. The excessive laundry cost of the older method is reduced to an almost negligible factor by this arrangement. After use the bag can be washed without damage. Moreover, the patient is not burdened and exhausted by the weight of six heavy woolen blankets and rubber sheeting. The work of the nurse is also materially lightened.

Rectal temperature is the only safe guide. We use the thermocouple method of recording rectal temperature as this permits a minimum of disturbance to the patient and loss of heat due to getting into the treatment bag every fifteen minutes. The method and instrument used have previously been described by Markson and Osborne.[7] The difficulty of maintaining the constant junction at a constant temperature presented certain disadvantages, chief of which was an incorrect temperature reading. The problem was presented to a well known scientific supply house, and they have developed for our use a similar instrument that is simple and accurate in operation. It is a sensitive indicating device, so that the temperature changes

---

Read before the Section on Pathology and Physiology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

From the Allergy Clinic of the Department of Medicine and the Department of Physical Medicine of Northwestern University Medical School, and the Department of Medicine of Cook County Hospital.

[1] Rackemann, F. M.: Clinical Allergy, New York, The Macmillan Company, 1931, p. 484. Berg, S.: Relief of Bronchial Asthma Following Lobar Pneumonia, J. Allergy **2**: 54 (Nov.) 1930.

[2] Mehrtens, H. G., and Pouppirt, P. S.: Hyperpyrexia Produced by Baths, Arch. Neurol. & Psychiat. **22**: 700 (Oct.) 1929.

[3] Neymann, C. A., and Osborne, S. L.: Artificial Fever Produced by High Frequency Currents: Preliminary Report, Illinois M. J. **56**: 199 (Sept.) 1929; The Treatment of Dementia Paralytica, with Hyperpyrexia Produced by Diathermy, J. A. M. A. **96**: 7 (Jan. 3) 1931.

[4] Feinberg, S. M.; Osborne, S. L., and Afremow, M. L.: A New Method of Nonspecific Treatment of Allergic Disease: Preliminary Report, J. Allergy **2**: 291, 1931; Fever by Diathermy in the Treatment of Allergic Disease, ibid. **2**: 414 (Sept.) 1931.

[5] Feinberg, Osborne and Afremow (footnote 4, first reference).

[6] Feinberg, Osborne and Afremow (footnote 4, second reference).

[7] Markson, D. E., and Osborne, S. L.: Treatment of Arthritis by Sustained Fever Therapy: Preliminary Report of Six Cases, Illinois M. J. **60**: 397 (Nov.) 1931.

can be noted instantly (fig. 1). This advantage while working with high temperatures is obvious.

The care of electrodes is most important if burns are to be avoided. They must be rolled out on a flat surface, the metal free from rucks, and the rubber backing applied. The body is anointed with a lubricating jelly, and the back electrode is applied with the patient sitting up, care being taken to see that it does not extend too high at the shoulders. The canvas jacket is placed over this and the patient lies down in a position on the back rest. Then the front plate is applied but not molded to the chest by the hands. The jacket is then loosely laced down the center and is gradually tightened to a comfortable point. A gradual tightening of the side laces molds the electrodes to the body contours without digging the edges into the skin.

The amount and duration of current flow necessary to secure the desired temperature will differ with patients. We use from 3,000 to 6,000 milliamperes. Four thousand milliamperes was the general average. An hour and three-fourths was the average time necessary to secure and sustain a rectal temperature of 104 F., which it was our aim to secure and sustain for eight hours. This has been accomplished. At the end of this period insulation is gradually removed thus lowering the temperature. When the rectal temperature falls to 100 F., a tepid sponge bath is given and the patient placed in a freshly prepared bed.

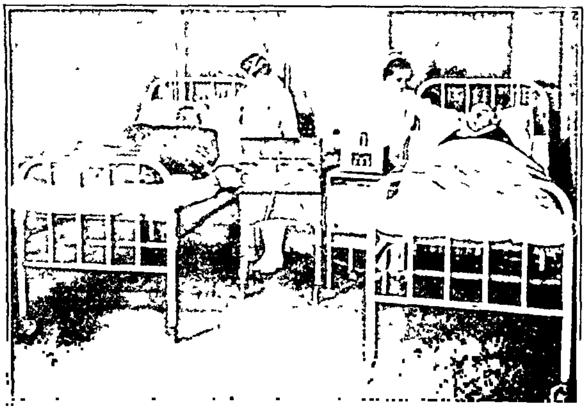


Fig 1.—Patients treated in series. The chest electrodes are coupled together and the back electrodes lead to the machine. The temperature indicator is on the table at the right.

After the current is turned off a secondary rise of temperature nearly always ensues and occasionally rises above 106 F. When the rectal temperature reaches 106 F. and a clinical thermometer is used for recording, readings should be taken every two minutes until it begins to fall. The temperature should not be permitted to exceed 106 F. rectally. At this temperature exposure of an arm is usually sufficient to prevent a further rise, and as soon as the temperature begins to drop the arm is covered again. Nurses are supplied with written instructions on methods of reducing temperature without detriment to the treatment. Occasionally the temperature will have a tendency to fall below the desired level before the eight hour period has elapsed. The use of hot water bags in the bed will often prevent this drop and may even cause the temperature to rise. Hot water bags should be removed when the rectal temperature reaches 105 F.

We have arbitrarily selected two treatments as a course, and these are given at two or three day intervals. Lately we have given repeated courses of treatment to patients when they began to retrogress. These, however, have been given at no definite interval of time.

MANAGEMENT OF THE PATIENT

Thorough examination of the patient prior to fever treatment is essential. The first object is examination and prolonged observation in order to decide whether such treatment may be necessary, as the majority of asthmatic patients will respond to the methods ordinarily used. The second object is to appraise the patient to determine whether such treatment is safe for him. A thorough physical examination, urinalysis, a blood count, electrocardiography and any other tests indicated are done to determine this point.

We have found from our experience that patients should be hospitalized for a period of from four to five days, during which time two treatments are administered. If necessary the patient may leave the hospital for two or three days between treatments. On the day of treatment the breakfast is light, the midday meal consists of fluids and in the evening a full meal may be given. During the fever the use of fluids should be encouraged; the free use of liquids does not interfere with the elevation of temperature, while the deprivation of them may make the patient extremely ill and uncomfortable.

Since there is considerable discomfort during the treatment, we have in the last few months used sedatives in practically all instances. The sedatives are administered, as a rule, at the time the patient's discomfort and restlessness become evident—usually at a temperature of 102 F. Morphine, ¼ grain (0.016 Gm.) hypodermically, is effective in most instances. In others a combination of $^{1}/_{150}$ grain (0.4 mg.) of scopolamine and from ⅙ to ¼ grain (0.010 to 0.016 Gm.) of morphine is necessary. We are also experimenting with other sedatives. In the use of sedation it is wise not to cause complete loss of sensation and not to obtain the effects too early, as otherwise burns might be produced without the knowledge of the patient. Since many patients with asthma are intolerant to morphine this drug should be used with caution. It is not at all uncommon for asthmatic attacks to occur during the fever. In most instances epinephrine is the remedy of choice.

REACTIONS

Perspiration is usually profuse. In the event of a marked diminution in diaphoresis unpleasant reactions may follow. Restlessness of varying degree is always present, the extent depending chiefly on the temperament of the patient. Nausea is present in some instances, and on three occasions vomiting resulted. In one case the vomitus contained undigested material eaten twenty-four hours previously. Muscle cramps have occurred in two or three instances, mild delirium in one and herpes labialis quite frequently, the latter, as a rule, on the day following treatment. In one instance fever persisted for three or four days following treatment, apparently due to an acute exacerbation of a chronic bronchitis.

If the pulse-rate reaches around 160 per minute, the patient should be carefully watched. If there is marked distress, a weak or irregular pulse, marked cyanosis or any other alarming symptoms the treatment should be discontinued.

PHYSIOLOGIC AND LABORATORY DATA

Our aim was to have the following data in every case in which the patient was treated: records of the rectal temperature, pulse and respiration every fifteen minutes; weight; blood pressure; vital capacity; results of urinalysis; complete blood count and the chemical composition of the blood, particularly the acid-base equilibrium, nonprotein nitrogen and urea nitrogen before and after each treatment. In addition, the blood pressure, blood count and chemical composition of the blood during the height of the fever were determined. Unfortunately, because of lack of equipment and personnel all these procedures could not be carried out often enough on a single patient to complete our data.

Table 1 shows the number of determinations we were able to make and the average results obtained. Chemical analysis of the blood showed a slight average increase of urea and nonprotein nitrogen, the largest single increases being 17.4 and 11 mg., respectively. There was practically no average increase of the carbon dioxide combining power of the blood with high fever, although in three instances there was an increase greater than 10 per cent by volume. Alkalization of the patient for a few days prior to treatment increased the carbon dioxide combining power of the plasma before treatment, but showed the usual deviation during fever. The largest single variation in these figures was either a decrease or an increase of 18 per cent by volume. In fourteen instances the change was less than 5 per cent by volume either way.

TABLE 1.—*Physiologic and Laboratory Data*

	Number of Determinations	Before Treatment		During Treatment		Average Difference During Treatment	Subsequent
		Highest	Lowest	Highest	Lowest		
Blood: Carbon dioxide combining power	74	64	38	72	35.4	−0.8% by vol.	None
Nonprotein nitrogen	40	50	27	54	27	+2.08	None
Urea nitrogen	45	44.00	9.34	45.52	10.00	+4.16	None
Blood count	60						
Hemoglobin	..	98	60	98	60	None	Improved
Erythrocytes	..	6,190,000	2,800,000	5,590,000	2,260,000	+217,000	Improved
Leukocytes	..	16,700	5,030	23,650	5,150	+2,962	Lower
Polymorphoneutrophils	..	84%	36%	94%	43%	+7.8%	Lower
Eosinophils	..	9%	Less than 1	6%	Less than 1	−1.3%	Normal
Basophils	..	3%	Less than 1	2%	Less than 1	−0.2%	Normal
Lymphocytes	..	55%	7%	46%	3%	−6.7%	Normal
Transitionals	..	14%	Less than 1	17%	0.5%	+0.7%	Normal
Blood pressure	48						
Systolic	..	146	80	176	94	+11.4	None
Diastolic	..	104	50	110	58	+4.3	None
Vital capacity	..	....	....	....	....	....	Improved
Urine	..	....	....	....	....	....	None
Weight	..	....	....	Decreased		....	Increased

There is an average increase of the red blood cells, leukocytes, neutrophilic polymorphonuclears and transitional cells. Eighteen cases showed an increase of red blood cells, while eleven showed a decrease. The average gain with fever was 217,000 cells; twenty-two showed an increase in leukocytes and seven a decrease, the average gain being 2,962 cells. The eosinophil percentage decreased noticeably during the fever, but subsequently returned to its former range.

The blood pressure readings indicated a moderate rise in systolic and a slight rise in diastolic pressures. In a previous communication on fever therapy it was indicated that the systolic pressure rose and the diastolic fell during the height of the fever. We believe that the change in our data recently has been due to the medication in the form of morphine sulphate or morphine and scopolamine which the patients have been receiving during the treatment.

There was a loss of from 2 to 5 pounds (0.9 to 2.3 Kg.) with each treatment, chiefly from the profuse diaphoresis. This was rapidly regained in one or two days. The majority of patients gained weight as a result of improvement in their general health.

In those instances in which we were able to check up on the vital capacity before and after successful treatment there was found an increase of as much as 2 liters.

Aside from the increase in vital capacity and weight there were no decided subsequent changes in the chemical composition of the blood and the blood pressure.

SELECTION OF CASES

All of the patients selected for treatment were those who had failed to respond to all the usual methods, and most of them had been under our care for from a few months to several years. They were all suffering with chronic asthma, one or more attacks occurring daily, and the majority of the attacks were severe. About 70 per cent had one or more complicating pulmonary conditions, such as emphysema, marked bronchitis and peribronchitis and bronchiectasis. Two patients had active syphilis.

ANALYSIS OF RESULTS

The results are tabulated in a way to indicate the history of the patient with respect to age, sex, duration, complications, final diagnosis and treatment up to the time diathermy fever was used as a method of therapy (table 2). Under previous treatment we mean to include a complete diagnostic appraisal with history, physical examination and complete laboratory data. All cases were thoroughly tested from the standpoint of hypersensitiveness. Removal of atopens when possible, prolonged attempts at desensitization, autogenous and stock vaccines, physical therapy, roentgen exposures, injections of sulphur, intravenous injections of sodium iodide, acid mixtures and other measures were utilized in attempting to benefit our patients. Surgical procedures, especially about the nose, throat and accessory sinuses, were carried out in many instances. We have included the dates of the first and the last treatments, the period of observation and the results. When the patient has been absolutely free from asthmatic attacks we have designated this as remission; when the symptoms have been definitely diminished we have designated it as improvement. We have arbitrarily decided on a temperature of 103 F. or more sustained for at least five hours as a satisfactory treatment, and less than this as unsatisfactory treatment. During the past few months, owing to improved technic and better equipment, we have been able to maintain a temperature of 104 F. or more continuously for eight hours without marked discomfort or danger to the patient (see temperature curve [fig. 2]).

SUMMARY OF RESULTS (TABLES 2, 3 AND 4)

Since a previous communication, twenty-five additional patients, or forty-two in all, were treated. In addition, some of those previously treated received further treatment. Only thirty-seven cases have been tabulated, five having been omitted because of insufficient data. This was necessitated by several factors. In some instances the patients received one or two treatments and were not heard from thereafter. In others the treatment was so unsatisfactory as to be valueless; these were cases in which the temperature was hardly elevated, owing chiefly to lack of cooperation by the patient. One patient who was treated only a week ago is in a remission.

TABLE 2.—*Analysis of Cases Treated*

Case, Age and Sex	Type of Asthma	Complications	Duration	Frequency, Severity	Previous Treatment	First Treatment	Last Treatment	Number of Treatments		Period of Observation	Sustained Fever Therapy		
								Satisfactory	Unsatisfactory		Total Number Days Remission	Total Number Days Improvement	
1. J. P. 43, ♂	Allergic	Bronchiectasis; emphysema	10 yrs.	Daily, severe	Prolonged; complete	3/ 2/31	3/15/32	2	6	13 mos.	10	30	
2. H. W. 55, ♂	Bacterial	None	1½ yrs.	Daily, moderate	Complete; surgical medication	9/28/31	4/ 8/32	1	1	7 mos.	50	140	
3. F. B. 53, ♂	Nonallergic	Bronchiectasis; emphysema	16 mos.	Extreme	Complete	12/18/31	4/ 1/32	8	1	4 mos.	None	80	
4. B. M. 38, ♂	Bacterial	None	2 yrs.	Daily, moderate	Complete	3/ 6/31	2/ 5/32	2	2	13 mos.	285	330	
5. S. M. 28, ♂	Nonallergic	Mitral disease	1½ yrs.	Daily, severe	Surgical medication; complete	2/23/32	4/ 8/32	3	1	1½ mos.	None	45	
6. J. W. 42, ♂	Allergic	Bronchiectasis; emphysema; sinusitis	13 yrs.	Severe	Complete	2/23/31	2/25/31	..	2	14 mos.	11	18	
7. S. W. 46, ♂	Nonallergic	Marked emphysema	9 mos.	Severe	Surgical medication; complete	10/30/31	11/10/31	2	..	2½ mos.	21	7	
8. E. M. 44, ♀	Bacterial	Emphysema; chronic bronchitis; anemia	10 yrs.	Severe	Surgical medication; complete	3/25/31	2/12/32	1	3	13 mos.	225	315	
9. M. C. 38, ♀	Bacterial	Emphysema	9 yrs.	Severe	Surgical medication; complete	5/27/31	6/ 1/31	..	2	9 mos.	None	None	
10. R. F. 18, ♀	Nonallergic	None	2 yrs.	Severe	Complete	8/ 5/31	8/ 7/31	..	2	4 mos.	None	None	
11. H. C. 35, ♂	Allergic	None	6 yrs.	Moderately severe	Complete	5/ 6/31	7/14/31	2	2	9½ mos.	180	285	
12. A. J. 40, ♂	Allergic	Bronchitis	1½ yrs.	Daily, moderately severe	Complete	8/ 3/31	2/26/32	4	6	9 mos.	60	80	No relapse
13. P. D. 54, ♀	Allergic	Emphysema; malnutrition	6 yrs.	Severe	Complete	11/ 3/31	11/ 6/31	2	..	3 mos.	None	None	
14. S. G. 46, ♂	Bacterial	Emphysema	10 yrs.	Severe	Complete	2/10/31	3/23/31	..	3	14 mos.	10	30	
15. J. H. 60, ♂	Bacterial	Aortitis; peribronchitis; 4+ Wassermann	3 yrs.	Severe	Complete	4/20/31	7/13/31	8	..	4 mos.	None	56	
16. J. J. 47, ♀	Nonallergic	Emphysema	5 yrs.	Severe	Complete	3/11/32	3/14/32	2	..	1 mo.	None	8	Not heard from since
17. E. J. 36, ♀	Nonallergic	Emphysema	5½ yrs.	Severe	Complete	1/26/32	2/ 3/32	2	..	No report	?	?	
18. L. L. 47, ♂	Nonallergic	Emphysema	10 yrs.	Severe	Complete	11/ 4/31	11/ 6/31	2	..	42 days	2	42	
19. A. M. 38, ♀	Nonallergic	Bronchitis	6 yrs.	Moderately severe	Complete	5/15/31	5/18/31	..	2	2 wks.	15	Still in remission	
20. S. M. 39, ♂	Allergic	Emphysema	1½ yrs.	Severe	Complete	11/21/31	3/ 1/32	4	3	12 mos.	None	120	Asthma continues; less severe
21. W. N. 40, ♂	Bacterial	Bronchiectasis	3 yrs.	Severe	Complete	9/ 5/31	9/ 9/31	..	2	?	?	?	No report
22. A. N. 59, ♂	Nonallergic	Emphysema; peribronchitis	11 yrs.	Severe	Complete	5/22/31	5/25/31	..	2	42 days	None	42	
23. F. O. 39, ♂	Allergic	Positive Wassermann reaction	13 yrs.	Severe	Complete	3/22/32	3/25/32	2	..	4 wks.	15	30	Still improved
24. M. O. 45, ♂	Nonallergic	Bronchitis	? yrs.	Severe	Complete	4/ 6/31	4/ 8/31	..	2	12 mos.	None	60	
25. C. S. 22, ♂	Nonallergic	None	1½ yrs.	Severe	Complete	4/ 3/31	5/22/31	..	7	3½ mos.	Only three attacks during 3½ mos.		Last report June 15, 1931
26. P. F. 40, ♂	Allergic	Peribronchitis	34 yrs.	Severe	Complete	3/18/31	3/20/31	..	2	4 mos.	None	120	Only an occasional attack
27. E. S. 50, ♀	Allergic	Emphysema; peribronchitis	3 yrs.	Severe	Complete	7/25/31	7/27/31	..	2	7 mos.	120	Continued since July, 1931	
28. F. T. 43, ♂	Nonallergic	Emphysema	2½ yrs.	Severe	Complete	3/31/31	4/ 2/31	..	2	2 mos.	None	60 (marked)	No report since
29. P. T. 45, ♀	Nonallergic	Emphysema	10 yrs.	Severe	Complete	5/29/31	6/ 2/31	..	2	5 mos.	None	150	
30. A. S. 49, ♂	Allergic	None	16 yrs.	Severe	Complete	3/ 1/32	4/ 1/32	3	..	1 mo.	Marked improvement since treatment		Only occasional asthmatic attack
31. J. B. 50, ♂	Nonallergic	Emphysema	2½ yrs.	Severe	Complete	3/ 9/32	3/12/32	2	..	1 mo.	Remission since		
32. S. M. 44, ♀	Nonallergic	Emphysema	12 yrs.	Severe	Complete	11/ 4/31	....	..	1	4 mos.	60	60	
33. I. G. 43, ♀	Nonallergic	Emphysema	18 yrs.	Extreme	Complete	3/18/32	3/22/32	2	..	1 mo.	None	1	
34. L. B. 35, ♀	Nonallergic	Pregnancy	5 yrs.	Severe	Complete	8/11/31	8/25/31	1	3	6 mos.	25	25	
35. L. S. 19, ♀	Nonallergic	None	9 yrs.	Severe	Complete	2/16/32	2/18/32	..	2	2 mos.	None	None	
36. M. P. 57, ♀	Allergic	None	5 yrs.	Severe	Complete	6/ 3/31	....	1	..	6 mos.	9	9	
37. A. R. 65, ♂	Allergic	Bronchitis	10 yrs.	Severe	Complete	9/30/31	....	..	1	6 mos.	None	None	

Twenty-one patients received at least one satisfactory treatment, the largest number of such treatments in a single case being eight, and the least, one. Fifty-six satisfactory and sixty-five unsatisfactory treatments were given in all. The longest period of observation was fourteen months, in two cases; it was from twelve to thirteen months in five cases. Six cases were observed for one month or less. Nineteen cases showed complete remissions, varying from four to two hundred and eighty-five days. In three instances the remissions have not ceased to the time of writing. Thirty patients have shown distinct improvement, varying from fourteen to three hundred and thirty days. Twenty-two patients have shown improvement for a month or more. No average days of remission or improvement per case can be estimated in all instances as several of the patients are still in remission or continue to be markedly improved. Not one patient who received three or more satisfactory treatments failed to respond with improvement. Nine of twelve allergic patients showed either remission or improvement. Treatments were usually given in pairs three days apart. Eighty per cent of the patients treated showed remission, improvement or both; 13 per cent were unimproved.

TABLE 3.—*Comparison of Results with Satisfactory and Unsatisfactory Fever Curve*

	Improved				
	Remission	Partial	Unimproved	No Report	Total
Satisfactory fever curve......	13	6	1	1	21
Unsatisfactory fever curve...	6	5	4	1	16
Total number..............	19	11	5	2	37
Total percentage...........	51	29	13		

TABLE 4.—*In the Thirty-Seven Cases Analyzed, Five Patients, or 13 Per Cent, Showed No Improvement; Two, or 5 Per cent, Were Not Heard From, and the Remaining Thirty, or 80 Per Cent, Showed Improvement of Varying Duration, as Indicated*

No. of Weeks Improved per Double or Single Treatment	No. of Cases	Comment
Less than 1 week......	1	
1 week...............	6	
2 to 3...............	7	Two still in remission; one still improved
4 to 6...............	6	Three still improved
7 to 8...............	3	One still improved
9 to 12..............	..	
13 to 22..............	4	One still improved
23 to 48..............	3	One still improved
Total.............	30	

COMMENT

Since our first publication[5] on fever treatment of asthma there have been reports by others indicating poor results with such treatment. Analysis of the protocols of these cases makes it evident that the fever in the majority of the reported cases was not kept high enough for a sufficient length of time. To our mind this is sufficient reason to account for their failures, since our own results have even improved over those of our first reports by giving more thorough treatment.

Our series of cases included both nonallergic and allergic patients, but mostly the former. The allergic cases were, however, also complicated by bronchial infection. Apparently, the percentage of success in the cases of allergic and nonallergic asthma was about the same. In the group of allergic patients we had the opportunity of making quantitative studies on the skin and on the atopic reagins, before and after the fever treatments. We found no decided changes in that direction and were forced to conclude that the mechanism of relief could not be explained on that basis. Figures 3 and 4 show examples of such studies.

There are many other possibilities which might be considered as an explanation of relief of asthma by fever treatment. It has been claimed[8] that asthma (and other allergic conditions) is a state of potential alkalosis and that anything which increases the acidity will relieve the asthma. In support of that theory the exponent cites a number of conditions accompanied by acidosis, among which is infectious fever, that have a beneficial effect on allergic manifestations. In our work we found that artificial fever caused a negligible decrease in the carbon dioxide combining power of the plasma, in some cases even an increase occurred. We realize that more extended chemical examinations would have to be made to settle this problem, but we think that no marked changes in acid-base balance occur. In these observations we are supported by the findings of others in artificial[9] and natural fevers.[10] We went a step further and proceeded to alkalize several patients prior to treatment and found that it in no way prevented a successful outcome. Antibody responses cannot be offered at present as the mechanism involved, if we are to be guided by the lack of increase in complement and opsonins.[11] The increase in leukocytes, while usually present, was only moderate.

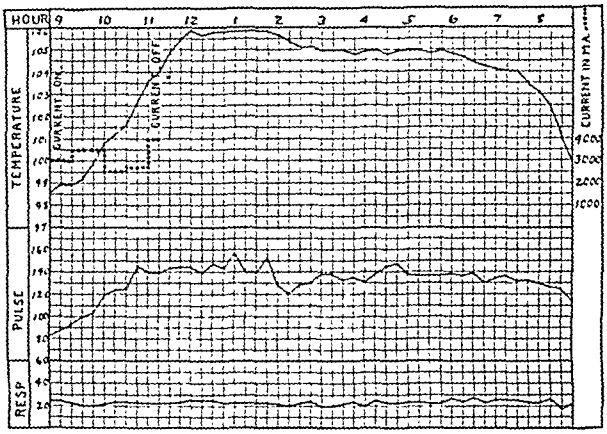


Fig. 2.—Typical fever curve obtained with high frequency current in an asthmatic patient.

It has been suggested[12] that the curative value of fever and inflammation from nonspecific agents owes its origin to split protein products and not to the fever. In a fever produced by physical means such products are, of course, least likely to be present. The possibility of increased capillary permeability with resulting local increase of antibodies or perhaps improved conditions for absorption of inflammatory products must be considered. This thought is supported by the work of Mehrtens and Pouppirt,[13] who found an increased permeability of the meninges following fever produced by baths.

---

[8] Beckman, Harry: Allergy and the Acid-Base Balance, J. A. M. A. **95**: 1582 (Nov. 22) 1930.

[9] Bischoff, F.; Long, M. L., and Hill, E.: Studies in Hyperthermia: Acid-Base Equilibrium in Hyperthermia Induced by Short Radio Waves, J. Biol. Chem. **90**: 321 (Jan.) 1931. Bischoff, F.; Ullmann, H. J.; Hill, E., and Long, M. L.: Studies in Hyperthermia Induced by High Frequency Electric Current, ibid. **85**: 675 (Feb.) 1930. Mortimer, B.: Experimental Hyperthermia Induced by High Frequency Current, Radiology **16**: 705 (May) 1931. Banus, M. G.: Carbon Dioxide Absorption Curve and Buffer Value of Blood in Physical Hyperthermia, Am. J. Physiol. **88**: 709, 1929.

[10] Brühl, H.: Untersuchungen zur Frage der CO_2-Bindungsfähigkeit des Blutes im Fieber, Ztschr. f. d. ges. exper. Med. **62**: 525, 1928.

[11] Jung, R. E., and Day, A. A.: Effect of Diathermy on Concentration of Complement and Normal Opsonins, Proc. Soc. Exper. Biol. & Med. **28**: 1080 (June) 1931.

[12] Grunzweig, B.: Bemerkungen zur Heilfieber-Entzündungstheorie nach unspezifischen Mitteln, Med. Welt **5**: 122 (Jan. 24) 1931.

[13] Mehrtens, H. G., and Pouppirt, P. S.: Effect of Hyperpyrexia, Produced by Baths, on Permeability of Meninges, Proc. Soc. Exper. Biol. & Med. **26**: 287 (Jan.) 1929.

The well known effects of heat and fever on the vascular bed and consequent improved conditions for absorption of inflammatory and waste materials may be offered as an explanation for the results of fever treatment in asthma. In the same connection it might be argued that the effect of the fever may be to stimulate the sympathetic nervous system, thus resulting in bronchial relaxation. It would be difficult to see, however, why such an effect would be prolonged.

Another suggestion for a possible mechanism for this effect lies in the work of von Euler,[14] who found in the blood of patients with fever some substance having the properties of epinephrine. The effect of fever on the reticulo-endothelial system also requires consideration.

Since Duke [15] has suggested that patients sensitive to heat may be relieved by heat, it might be argued that our patients obtained their effects on this basis. It is hardly probable, however, that the majority of our patients were sensitive to heat.

The effect of fever treatment on other allergic conditions has been considered by us. In several instances of seasonal hay fever we have obtained encouraging results. In a woman with chronic urticaria of long standing we obtained a remission of two weeks with further improvement as a result of a single treatment. In one case of asthma associated with chronic eczema there was improvement in the latter condition. However, in none of the allergic conditions outside of asthma has our experience with fever treatment been sufficient to warrant any definite opinion.

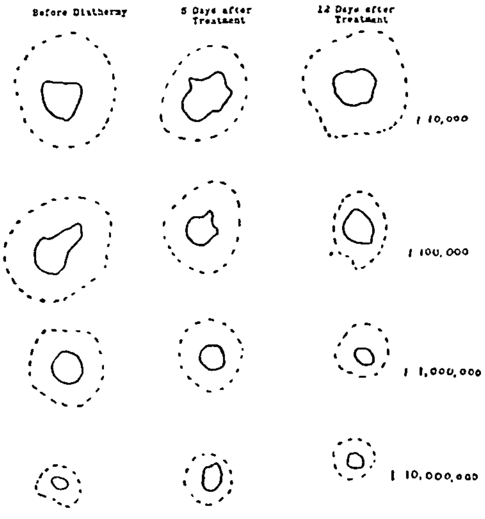


Fig. 3.—Effect of diathermy fever on skin tests. Intradermal tests with dilutions of wheat in J. W. (case 6, table 2).

SUMMARY

This report concerns a group of forty-two patients with intractable asthma, 70 per cent of whom had complications such as emphysema, chronic bronchitis or bronchiectasis, and all of whom had been unrelieved by the usual methods of treatment. Fever, produced by high frequency currents according to a described improved technic, was tried in all of these patients and was found to be a safe procedure. Of thirty-five of those in whom the results have been ascertained, 51 per cent had a complete remission varying from several days to nine and one-half months, and 29 per cent had improvement without remissions.

It is possible that with cases of milder degree and with more persistent treatment even better results may be obtained. The laboratory determinations and other observations do not as yet allow any conclusion as to the mechanism of this relief. It is suggested that fever therapy may possibly be found useful in other allergic conditions such as urticaria, angioneurotic edema, eczema, hay fever and migraine.

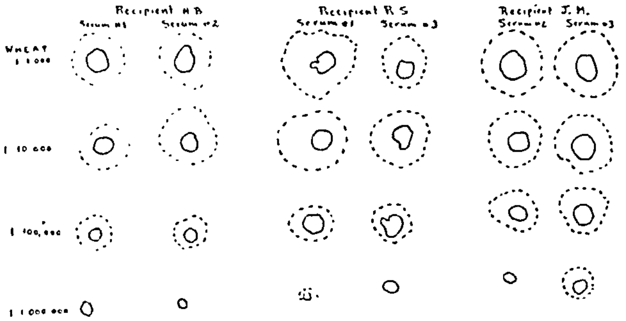


Fig. 4.—Effect of diathermy fever on reagin. Intradermal tests with dilutions of whole wheat on the skins of three persons sensitized with the serum of J. W. The reactions under Serum 1 were before treatment; those under Serum 2, at the height of fever, and those under Serum 3, five days after treatment.

In conclusion, we may definitely state that in fever therapy we have found a method of obtaining relief in some cases of intractable asthma in which all other methods had heretofore failed.

185 North Wabash Avenue.

---

[14] von Euler, V.: Production d'adrénaline dans la fievre, Congr. Internat. de Physiol., Boston, 1929, p. 19.

[15] Duke, W. W.: Heat and Effort Sensitiveness, Cold Sensitiveness, Arch. Int. Med. **45**: 206 (Feb.) 1930.

PATHOLOGY AND SYMPTOMATOLOGY OF HEADACHES DUE TO SPECIFIC SENSITIZATION

HERBERT J. RINKEL, M.D.
AND
RAY M. BALYEAT, M.D.
OKLAHOMA CITY

Headaches due to specific sensitization with the clinical characteristics of migraine have been reported by a number of authors.[1] The term "migraine," as commonly used,[2] in the main refers to paroxysmal attacks of hemicrania (occasionally bilateral headache) associated with sensory and motor disturbances. These motor and sensory symptoms, as well as the crossed hemicrania, gastric and cardiac inhibition and vasomotor

---

From the Balyeat Hay Fever and Asthma Clinic.

Read before the Section on Pathology and Physiology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

[1] Rowe, Albert H.: Food Allergy, Philadelphia, Lea & Febiger, 1931. Vaughan, Warren T.: Allergic Migraine, J. A. M. A. **88**: 1383-1386 (April 30) 1927. Balyeat, Ray M., and Brittain, Fannie Lou: Allergic Migraine: Based on the Study of Fifty-Five Cases, Am. J. M. Sc. **180**: 212 (Aug.) 1930. Balyeat, Ray M., and Rinkel, Herbert J.: Further Studies in Allergic Migraine: Based on a Series of Two Hundred and Two Consecutive Cases, Ann. Int. Med. **5**: 713-728 (Dec.) 1931. Beecher, W. L.: Migraine or Sick Headache, Illinois M. J. **55**: 123, 1929.

[2] (*a*) Osler, William; and McCrae, Thomas: The Principles and Practice of Medicine, ed. 9, New York, D. Appleton and Company, 1920, p. 1080. (*b*) Dorland, W. A. Newman: *The American Illustrated Medical Dictionary*, ed. 11, Philadelphia, W. B. Saunders Company, 1922, p. 636. (*c*) Block, E. Bates, in Tice: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, Inc. **10**: 381, 1922. (*d*) Church, Archibald; and Peterson, Frederick: Nervous and Mental Diseases, Philadelphia, W. B. Saunders Company, 1922, p. 661. (*e*) Stevens, A. A.: The Practice of Medicine, Philadelphia, W. B. Saunders Company, 1922, p. 1048. (*f*) Timme, Walter, in Nelson's Loose-Leaf Living Medicine, New York, Thomas Nelson & Sons, **6**, 654A-654H.

changes, indicate disease of the cerebral cortex.[2d] Thus migraine may be defined as a paroxysmal disease characterized by hemicrania (also bilateral headache) and symptomatic evidence of cortical involvement.

There are headaches due to hypersensitiveness that cannot be classified as migraine since they do not have cortical features. Eyermann[3] called attention to this and suggested the term "allergic headache" instead of "allergic migraine." Some headaches have clinical phenomena that indicate their allergic nature, but many, including migraine, do not. That any symptoms are due to allergy must be determined by clinical trial, i. e., relief by avoidance and recurrence on contact or ingestion. All headaches that are due to specific hypersensitiveness (allergy) should be designated as such, and the particular form indicated, i. e., migraine, the bandlike headache of hay fever, frontal sinus headache, etc.

Table 1.—*Symptoms Observed in Headaches Due to Specific Sensitization in Sixty-Five Cases*

	33 Females		32 Males	
	No.	%	No.	%
Average results of treatment	80.30%		78.43%	
Average age of onset	11.1 years		14.5 years	
Average duration of attack	2.21 days		1.33 days	
Average frequency per month	4.6		6.9	
Migrainous status present in	1	3.03	2	6.25
Prodromal state, reported in	30	90.9	26	81.20
Depression	13	39.3	16	50.0
Profound sleep	12	36.3	10	31.2
Bulimia	16	48.4	15	46.8
Hyperactivity (physical and mental)	18	54.5	7	21.8
Bad breath	4	12.1	4	12.5
Canker sores	3	9.09	3	9.3
Lump in throat (globus hystericus)	2	6.06	0	
Hives	0		0	
Abdominal distress	0		4	12.5
Sensory, motor and vasomotor symptoms	30	90.9	26	81.2
Vertigo	14	42.4	8	25.0
Scotomas	17	51.5	17	53.1
Zigzag lights	13	39.3	13	40.6
Hemianopia	5	15.1	4	12.5
Transitory amaurosis	1	3.03	2	6.25
Generalized blurring of vision	7	21.2	3	9.3
Interocular pain	10	30.3	2	6.25
Intra-ocular pain	13	39.3	10	31.2
Ophthalmoplegic symptoms	0		0	
Diplopia	2	6.06	2	6.25
Ptosis	0		0	
Auditory symptoms	7	21.2	2	6.25
Olfactory symptoms	3	9.0	0	
Paresthesias: feet	8	24.2	7	21.8
hands	11	33.3	8	25.0
face	7	21.2	10	31.2
body	1	3.03	0	
Motor aphasia	2	6.06	4	12.5
Paresis (arm or leg; tongue)	2	6.06	0	
Agraphia	0		0	
Cerebellar ataxia	5	15.1	1	3.12
Sympatheticotonic				
Pallor on side of pain	7	21.2	6	18.7
Temporal artery of high tension	0		0	
Temperature lowered on side	0		0	
Retraction of eye	0		0	
Mydriasis	1	3.03	0	
Sympatheticoparalytic				
Redness of affected side	5	15.1	1	3.12
Lacrimation	1	3.03	0	
Photophobia	16	48.4	10	31.2
Contraction of pupils	11	33.3	8	25.0
Elevated temperature	0		0	
Unilateral hyperhidrosis	0		0	
Sweating (generalized)	4	12.1	4	12.5
Lacrimation (without other vasomotor symptoms)	1	3.03	0	
Coldness of	5	15.1	1	3.12
Hemorrhage	0		0	
The attack				
Location: temporal	29	87.8	24	75.0
frontal	23	69.6	21	65.6
occipital	22	66.6	18	56.2
vertex	0		1	3.12
Clinical course of the pain				
Hemicrania throughout attack	23	69.6	22	68.7
Crossed hemicrania	6	18.1	6	18.7
	4	12.1	4	12.5
	16	48.4	13	40.6
	2	6.06	2	6.25
Nausea				
Early in life	30	90.9	25	78.1
Late in life	27	81.8	22	68.7
Emesis				
Early in life	23	69.6	21	65.6
Late in life	14	42.4	16	50.0
Time of day of onset				
Chiefly morning or on awakening	22	66.6	21	65.6
Either morning or during day	11	33.3	11	34.3
Nasal congestion with headache	12	36.3	8	25.0
Psychic symptoms				
Temporary amnesia	5	15.1	3	9.3
Visual hallucinations	1	3.03	1	3.12
Depression (morose)	3	9.09	4	12.5
True psychoses: confusion	2	6.06	1	3.12
stupor with hallucination and delusion	2	6.06	1	3.12
delirium	4	12.1	1	3.12
Postmigrainous stage	24	72.7	25	78.1
Polyuria	6	18.1	6	18.7
Rhinorrhea	6	18.1	4	12.5
Exhaustion	21	63.6	21	65.6
Sleepiness	12	3.63	10	31.2
Edema of hands	1	3.03	0	
Generalized body soreness	2	6.06	3	9.3
Abortive attack				
Alternating with regular attack	7	21.2	12	37.5
Present alone	0		0	
Predisposing factors				
Increase of attacks at menses	13	39.3		
Emotional stress	6	18.1	1	3.12
Anger	0		1	3.12
Pregnancy (less frequent)	1	3.03		
Constipation	3	9.0	4	12.5
Physical fatigue	10	30.3	17	53.1
Mental fatigue	6	18.1	9	28.1
Disturbance of special senses (eyes)	2	6.06	1	3.12
Proved relation to food				
Before testing	9	27.5	10	21.25
After testing and manipulation	33	100.0	32	100.0
Associated allergy in the patient				
Hay fever	9	27.5	11.	34.3
Asthma	4	11.6	5	15.6
Urticaria	9	27.5	6	18.7
Eczema	5	15.1	3	9.3
Gastro-intestinal distress	10	30.3	9	28.1
Epilepsy	1	3.3	1	3.12
Purpura	0		1	3.12
Family history of allergic diseases and related syndromes				
Hay fever	6	18.1	9	28.1
Headaches	29	87.3	24	75.0
Asthma	10	30.3	9	28.1
Eczema	5	15.1	4	12.5
Urticaria	4	12.1	3	9.3
Gastro-intestinal symptoms known to be due to allergy	1	3.03	2	6.24
Epilepsy	0		0	
Cancer	2	6.06	0	
Tuberculosis	1	3.03	1	3.12
High blood pressure	2	6.06	1	3.12
Obesity	1	3.03	1	3.12
Falling hair	1	3.03	0	
Arthritis	2	6.06	1	3.12

For the purpose of study an analysis of sixty-five such cases is presented (table 1).

These sixty-five cases were selected because in each instance headache had been produced by ingestion of foods, relief by dietary manipulation alone had been excellent and, in addition, the history as given by the patient was satisfactory.

Several points are worthy of mention. 1. The attacks are longer, though less frequent, in females, while males have frequent attacks of shorter duration. 2. Attacks with prodromal symptoms, sensory, motor and vasomotor phenomena, hemicrania and a postmigrainous phase were reported by approximately one half of these patients. 3. Hyperactivity, either physical or mental, is twice as common in women as in men. 4. The menses are the most frequent predisposing factor in woman and physical exhaustion is in man. 5. Familial headache occurs in a ratio of 3:1 to allergic diseases. 6. One third of these patients knew that certain foods produced their present complaint.

---

[3] Eyermann, C. H.: Allergic Headache, J. Allergy **2**: 106 (Jan.) 1931.

A patient who has bilateral headache with aura and who also experiences a unilateral attack with sensory and motor symptoms is listed in the latter group. We consider hemicrania with premonitory phenomena, aura, signs of exhaustion, etc., as the most important clinical form. The generalized headache with the same features is thought to be second in importance. Symptoms manifest in various attacks vary greatly, as can be seen in table 3.

Table 2.—*Analysis of Symptomatology of Sixty-Five Patients with Headache Due to Specific Sensitization*

Patients in Whom the Majority of Symptoms Were	Females		Males	
	No.	%	No.	%
Hemicrania with prodromata, aura and a postmigrainous phase	18	54.54	16	50.0
Hemicrania, aura and postmigrainous stage	3	9.09	5	15.62
Hemicrania with aura	1	3.03	0	
Hemicrania without prodromata, aura or postmigrainous symptoms (all attacks)	0		2	6.25
Bilateral headach, each attack with prodromata, aura and postmigrainous stage	7	21.21	4	12.50
Bilateral headache, each attack with aura and postmigrainous stage only	0		2	6.25
Bilateral headache, each attack with aura alone	1	3.03	1	3.12
Bilateral headache, always without aura	3	9.09	2	6.25
Total	33	99.99	32	99.99
Frontal headache with nasal congestion was present in	4	12.1	6	18.7
It was associated with prodromata, aura, hemicrania and postmigrainous phase in	3	9.09	3	9.3
It was associated with bilateral headache, prodromata, aura and postmigrainous phase in	1	3.03	2	6.25
It was associated with bilateral headache, aura and postmigrainous phase in	0		1	3.12

This variation is significant from the standpoint of both history taking and pathology. The patient is apt to describe his severest symptoms, and therefore may stress any one of these various types. From the standpoint of pathogenesis it is apparent that such a wide variation in symptoms in the same patient is probably not due to one localized organic lesion.

Unilateral or bifrontal headache is experienced by many patients, especially those with perennial vasomotor rhinitis. These patients in the main obtain immediate and complete relief when the nasal congestion is properly treated. In the majority of patients the instillation of ephedrine inhalant is sufficient. The pain results from closure of the nasofrontal duct, either by pressure or by pathologic swellings within the duct. It is made worse by using the eyes.[4] In one patient unilateral or bifrontal headache with nausea and emesis occurred every time she attended the theater. She was sensitive to orris root, and after desensitization had no further trouble. Headache due to pressure of the turbinates on the septum should not be confused with this type.

Table 3.—*Variation of Symptoms in Different Attacks in Eighteen Females and Sixteen Males*

	Females		Males	
	No.	%	No.	%
Patients with prodromata, aura, hemicrania and postmigrainous phase in the majority of instances	18	54.5	16	50.0
They also experienced				
Hemicrania with aura and postmigrainous phase only	8	24.2	7	21.8
Hemicrania with aura alone	4	12.1	4	12.5
Hemicrania without sensory, motor or vasomotor symptoms	1	3.03	7	21.8
Bilateral headache with prodromata, aura and postmigrainous phase	7	21.2	11	34.3
Bilateral headache with aura and postmigrainous stage	1	3.03	6	18.7
Bilateral headache with aura alone	0		1	3.12
Bilateral headache without sensory and motor symptoms	1	3.03	5	15.6
Frontal headache with nasal congestion	3	9.09	3	9.3
Headache due to sinusitis, secondary to nasal allergy	1	3.03	1	3.12

Patients with seasonal hay fever often experience a bandlike headache. The swelling of the mucosa lining the sinuses and nasal fossae results in pain, because of either pressure or interference with drainage. Headache occurring with the systemic reaction of pollen therapy, blood transfusion and drug therapy has been reported by Duke.[5] In our studies cortical features were not observed in such cases.

In one case, headache as a result of acute maxillary sinusitis has been reduced from five to six attacks each year to one in two and one-half years, by treating the existing hypersensitiveness. Sensitization is so frequently a predisposing factor in sinus infection that we mention it at this time. The headache is not due to allergy.

Table 4.—*Incidence of Familial Headache and Other Allergy in Sixty-Five Patients with Various Types of Headache*

Symptomatology	Females			Males		
	Number	Per Cent of Type	Per Cent of Total	Number	Per Cent of Type	Per Cent of Total
Hemicrania with either prodromata, aura or postmigrainous phase	22	.....	66.66	20	.....	62.50
History of headache	19	.....	57.57	15	.....	46.87
History of other allergy	8	.....	24.24	8	.....	25.00
Hemicrania without cortical features at any time	0	.....	.....	3	.....	9.37
History of headache	0	.....	.....	2	.....	6.25
History of other allergy	0	.....	.....	2	.....	6.25
Total of hemicrania of all types	22	100.0	66.66	23	100.0	71.87
History of headache	19	86.3	57.57	17	73.9	53.12
History of other allergy	8	36.3	24.24	10	43.4	31.25
Bilateral headaches with either prodromata, aura or postmigrainous phase	8	.....	24.24	7	.....	21.87
History of headache	8	.....	24.24	5	.....	15.62
Bilateral headache without cortical features at any time	3	.....	9.09	2	.....	6.25
History of headache	2	.....	6.06	1	.....	3.12
History of other allergy	2	.....	6.06	1	.....	3.12
Total of bilateral cases of all types	11	100.0	33.33	9	100.0	28.12
History of headache	8	72.7	24.24	6	66.6	18.75
History of other allergy	6	55.0	18.18	5	55.5	15.62

THE FAMILY HISTORY

A family history of headache was obtained in twenty-eight (84.4 per cent) of the women and twenty-three (71.8 per cent) of the men. The average age of onset for patients with a bilateral family history of allergy was 7.01 years in females and 10.5 years in males, whereas with a unilateral family history symptoms began at 13.9 and 12.4 years respectively. This indicates that heredity determines not only the clinical form of hypersensitiveness but the age of onset.[6]

From these data it appears that patients with unilateral headache have a higher incidence of familial headache, whereas those with bilateral attacks have a higher incidence of other allergy. Until a larger group of cases are studied, no definite conclusions should be drawn.

---

[4] Jackson, Chevalier; and Coates, George Morrison: The Nose, Throat and Ear and Their Diseases, Philadelphia, W. B. Saunders Company, 1929, p. 193.

[5] Duke, W. W.: Allergy, Asthma, Hay Fever, Urticaria and Allied Manifestations of Reaction, St. Louis, C. V. Mosby Company, 1925, p. 176.

[6] Coca, Arthur F.; Walzer, Matthew; and Thommen, August A.: Asthma and Hay Fever in Theory and Practice, Springfield, Ill., Charles C. Thomas, 1931, p. 57.

Headaches due to food or inhalants may be classified according to symptomatology under the following headings:

- I. Migraine
    - *a.* Hemicrania with prodromata, aura and postmigrainous phase; also those attacks having only aura and postmigrainous phase, or aura alone
    - *b.* Bilateral headache with prodromata, aura and postmigrainous phase; also with aura and postmigrainous phase, or aura alone
- II. Headache always without sensory, motor or vasomotor symptoms
    - *a.* Without nasal pathology
    - *b.* With nasal pathology
        - (1) Frontal headache
        - (2) Headache associated with seasonal or perennial vasomotor rhinitis
    - *c.* Headache of allergic reaction

The recurrence of attacks is subject to wide variation, and we believe that important information may be obtained by a careful study of the frequency.

- I. Periodic
    - *a.* Occurring
        - (1) Only in association with the menses
        - (2) Before puberty and after the menopause
    - *b.* Occurring at regular intervals (i. e., from fourteen to twenty-one days)
        - (1) Etiology not determined
        - (2) Etiologic factor demonstrable; headache due to periodic ingestion of the specific factor
    - *c.* Seasonal
- II. Nonperiodic
    - *a.* Occurring at irregular intervals
        - (1) With each ingestion of one or more foods
        - (2) After repeated ingestion of one or more foods
        - (3) Attacks precipitated by predisposing causes
            - (*a*) Emotional stress
            - (*b*) Anger
            - (*c*) Genitosexual
            - (*d*) Constipation
            - (*e*) Thyroid dysfunction
            - (*f*) Physical fatigue
            - (*g*) Mental fatigue
            - (*h*) Disturbance of special senses
    - *b.* Chronic form of headache (status migrainous), secondary to paroxysmal attack
    - *c.* Headache occurring always with, but also between, menses

The consideration of recurrence is important because it gives a clue to factors other than those of sensitization. A patient whose attacks occurred only at the menstrual period presented a different diagnostic problem from one whose difficulty occurred before puberty and after the menopause, and was still different than the one whose attacks recurred every fourteen days regardless of dietary manipulation. In the latter case food could induce a headache clinically the same as that occurring at periodic intervals. This periodicity may be due to the mode of living. There were two men whose weekly attacks over a period of years, were caused by foods taken on Saturday and Sunday but not used at any other time.

Some cases had seasonal features; i. e., attacks were limited to certain months of the year. Again, patients would have attacks over a period of six or eight weeks and then be free for no apparent reason for from twelve to fourteen weeks. Mitchell[7] has also reported this seasonal variation.

Of the nonperiodic headaches, the one most amenable to treatment occurs after each ingestion of a particular food. Therefore, the incidence is irregular.

Attacks may result from a single ingestion of a food, or occur with repeated taking of the same food; that is, the patient will have difficulty a week or ten days after a food is used in his diet. The symptoms are apparently the result of a cumulative action. Many patients state that their symptoms occur in definite relation to one or more of the predisposing factors. Fatigue, emotional stress and the menses are the most common. In one case an attack with prodromata, aura, hemicrania and a postmigrainous stage was definitely related to fits of anger. In this same patient headache could be produced at will by the ingestion of certain foods.

The chronic form of headache secondary to paroxysmal attacks may be confused with tumor of the brain, syphilis or uremia. It has been much more difficult to relieve these patients, although results have been obtained.

Women whose headache occurs with, but also between, the menses, have been considered as a separate group. It appears that other factors, as well as sensitization, are of etiologic importance.

Classification on the basis of (1) symptomatology and (2) recurrence is of value in arranging therapeutics. The prognosis seems best in those cases that have the clinical features of migraine, and recurrences are nonperiodic and occur after each ingestion of the food to which the patient is sensitive.

Where one deals chiefly with subjective symptoms, the chances of error and misinterpretation are many. We report these findings, fully cognizant of this fact, and with the hope that they will stimulate further study of this clinical phenomenon.

PATHOLOGY

Frontal sinus and band-like headaches of hay fever are due to various degrees of swelling and exudation in the mucosa and adjacent structures, such as swelling of the turbinates, resulting in pressure on the nasal septum or obstruction to the natural drainage, for instance, closure of the nasal frontal duct.

The pathology of the headache of systemic allergic reaction is probably due to similar changes.

We have not been able to demonstrate pathologic changes in patients who always have unilateral or bilateral headache without aura. In a number of these there was nasal congestion, chiefly after the headache, and when it was present during the attack, treatment of the congestion did not bring relief.

In discussing the pathology of the unilateral and bilateral headache with sensory, motor and vasomotor symptoms, we deal chiefly with theories and associated findings. Migraine refers to a clinical and not a pathologic entity. It may result from syphilis or malaria,[7] as well as from tumor of the pineal gland,[8] changes in the meninges[9] and tumefaction involving the third nerve. It is for this reason that complete details of the attack are of such great value.

An acceptable theory of pathology must take into consideration the frequency and age of onset, the influence of the vegetative nervous system and the frequently recurring attacks which leave no symptomatic evidence of permanent change. It is most certain that errors of refraction, nasal disease and pituitary enlargement can cause paroxysmal headache, but paralysis of cortical cells or symptoms of irritation are not likely to be manifest. Scintillating scotomas are not produced by irritation to the optic nerve distal to the geniculate bodies.[10] This would rule out suprasellar cysts and adenomas of the pituitary body. It is quite possible for these conditions to cause hemicrania, but this is not synonymous with migraine.

---

[7] Mitchell, Weir, quoted by Mettler: A Treatise on Diseases of the *Nervous System*, Chicago, The Cleveland Press, 1908.

[8] Jelliffe, Smith Ely: The Pineal Body, in Nelson's Loose-Leaf Living Medicine, p. 1052.

[9] Bienstock: Schweiz. med. Wchnschr. **56:** 502, 1926, quoted by Jelliffe (footnote 9), p. 1064).

If there is any evidence of involvement of the central nervous system with an infected sinus it will be that of meningitis or abscess of the brain, not scintillating scotomas, hemianopia, zigzag lights, motor aphasia or paresthesias. The same is true of errors of refraction.

ASSOCIATED PATHOLOGIC CHANGES

Cytologic studies were made in fourteen patients between, and two during, attacks. Three of these had other allergy. The results are shown in table 5.

TABLE 5.—*Cytologic Studies in Fourteen Patients Between, and in Two During, Attacks of Headache*

Case	Sex of Patient	In	Out	Other Sensitization	Myelocytes	Metamyelocytes	Band	Segmented	Total	Lymphocytes Small	Lymphocytes Large	Lymphocytes Total	Monocytes	Eosinophils	Basophils	Nuclear Index	White Blood Cells	Hemoglobin
19	M	.	+		0	0	10	35	45	38	5	43	8	3	1	3.5	8,800	90
42	F	.	+	. .	0	0	8	22	30	54	11	65	4	0	1	2.7	7,800	85
43	F	..	+	.	0	0	15	27	42	44	6	50	5	2	1	1.8	6,300	80
45	.	..	.		0	0	6	34	40	46	6	52	5	1	2	5.6	...	.
48	F	..	+	. ..	1	1	17	27	46	31	6	37	2	14	1	1.4	8,800	85
59	F	.	+	.	0	2	24	25	51	40	4	44	4	0	1	0.9	9,800	85
61	M	..	+	. .	0	0	15	56	71	21	4	25	2	2	0	3.7	6,500	100
62	M	..	—	Hives	0	0	4	32	36	55	2	57	0	2	5	8.0	7,100	90
64	F	..	+	Asthma	0	0	3	31	34	52	4	56	5	4	1	10.3	8,000	75
70	M	.	..	.	0	0	12	20	32	54	10	64	0	4	0	1.6	8,100	85
79	M	+	..	Hives	0	0	5	42	47	46	0	46	2	2	3	8.4	8,050	80
87	F	+	..	Asthma	0	0	4	52	56	34	1	35	4	5	0	13.0	7,600	90
142	M	.	+		0	0	6	50	56	30	0	30	6	8	0	..	7,950	80
144	F		+	Eczema	1	0	13	38	52	37	3	40	5	1	2	...	8,650	90
145	F	..	+	. .	0	0	12	40	52	39	1	40	6	2	0	...	7,350	70
148	F		+	.	0	0	9	28	37	45	5	50	2	9	2	..	6,400	90
188	M	..	+	. .	0	0	9	37	46	43	→ 3	46	5	1	2	4.1	7,000	80

The significant change in neutrophils was 31.25 per cent neutrophilia. Lymphocytosis occurred in 50 per cent of the cases. Monocytes showed a decrease in 37.5 per cent of the cases, eosinophilia an increase in 37.5 per cent and basophils an increase in 25 per cent of the cases The most important single change in the blood was a lymphocytosis. Monocytes, eosinophils and neutrophils changed about equally.

The average free acidity was 25.6 in twelve males and 24.8 in seven females. The combined acid was 37.3 and 20.2 respectively, while the total was 62.1 and 45.8 The average weight of the females was 123 pounds (55.8 Kg.) and that of the males 154 pounds (69.8 Kg.), while the average height was 64.25 inches (163.1 cm.) and 67 48 inches (171.4 cm) respectively. The weight of one of each sex exceeded 175 pounds (79.3 Kg.). The average weight for an age group of this height is 135 and 152 pounds (61.2 and 68.9 Kg.), according to life insurance statistics. Moehlig[11] has called attention to the average height in the family history. We have not made a detailed study of the height other than in the patient.

The basal metabolism test was made in twenty-two females and nineteen males. An average of plus 4 was obtained in two females and plus 9.5 in seven males. Twenty female patients averaged minus 14 and twelve males averaged minus 14 4.

Passive transfer was made according to the technic of Prausnitz and Kustner.[12] In case 1 the blood serum was from a patient who had migraine symptoms from chocolate, wheat and milk, while the patient in case 2 experienced hemicrania, paresthesias and exhaustion after ingesting potato, banana and egg. In both cases intracutaneous tests were run in the sensitized area twenty-four hours later, using 0.02 cc. of the food extract. Definite reactions were obtained with chocolate, wheat and milk in the areas sensitized with the serum from case 1. Potato and egg extracts gave definite reactions in the areas sensitized with the serum from case 2. The reaction with banana was positive, but the control injection also gave some reaction. The other control tests were negative. The banana extract has a tendency to cause nonspecific reactions, and it is possible that transfer was accomplished.

Ophthalmoscopic examination of the fundus and retina revealed no changes in attacks as compared with periods of freedom.[13] In two cases examination was made after headache of five days' duration. Both patients were subject to practically continuous headache for several months and had definite visual symptoms.

There was an average elevation of blood pressure of 30 mm. of mercury in three females and one male during the headache. In three women and three men it remained normal, while in one patient of each sex it was reduced. The results obtained in treatment were better in those with elevated blood pressure. In patients with chronic headache there was no change from their normal blood pressure. The average blood pressure in millimeters of mercury out of attack was 124 systolic and 80 diastolic in both sexes.

TABLE 6.—*Summary of Cytologic Studies in Sixteen Cases of Headache* *

		Per Cent	Per Cent In	Per Cent Out
Neutrophils	Normal	68.75	36.36	63.64
	Decrease	31.25	0.0	100.0
Lymphocytes .	Normal	50.0	37.5	62.5
	Increase	50.0	12.5	87.5
Monocytes . .	Normal	62.50	30.0	90.0
	Decrease	37.5	16.6	83.4
Eosinophils . .	Normal	62.5		
	Decrease	0.0		
	Increase	37.5	16.6	83.4
Basophils .	Normal	75.0	16.6	83.4
	Increase	25.0	25.0	75.0

* Hematologic analysis compiled by Dr. B. J. Olson, Minneapolis.

---

[10] Pollock, Lewis J Personal communication to the authors

[11] Moehlig, Robert C Migraine A Study Based on One Hundred Cases, Endocrinology 15: 11 (Jan Feb) 1931

[12] Prausnitz, C, and Kustner, H Zentralbl f Bakt 86: 160, 1921.

[13] Examination made by Dr A L Guthrie, associate professor of otolaryngology, University of Oklahoma School of Medicine, Oklahoma City.

CONCLUSIONS

An analysis of the symptomatology and associated pathologic changes in sixty-five patients in whom headaches could be induced by clinical trial reveals:

1. In approximately 85 per cent of the patients the headaches were characterized by prodromata, aura, unilateral or bilateral headache and a postmigrainous phase of exhaustion, sleepiness, polyuria or nasal symptoms.
2. The term migraine implies a clinical, not a pathologic entity, and should be used as such, and the specific cause of the attack should be stated, when known.
3. There is a wide variation of symptoms in the same patient, in different attacks.
4. The familial history of the headache is approximately three times as frequent as is the history of any allergic disease.
5. Headaches due to specific sensitization may be classified according to symptomatology as (*a*) migraine and (*b*) headaches without sensory, motor or vasomotor changes. The latter group includes (1) headaches without other demonstrable pathology, (2) attacks associated with allergic reactions in the nose and sinuses, that is, frontal and other headaches occurring in patients with seasonal or perennial vasomotor rhinitis, and (3) the headache of general allergic reaction. According to recurrence they may be classified as the periodic and nonperiodic.
6. The findings obtained by gastric analysis, basal metabolism, cytologic study and ophthalmoscopic examination have not been of diagnostic value. The weight and height average of these patients was within the normal limits.
7. Passive transfer was accomplished using the technic of Prausnitz and Küstner.
8. From these studies it appears that the symptomatology, familial history and protean manifestations of headaches due to specific sensitization are similar to those of hereditary migraine.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FEINBERG, OSBORNE AND STEINBERG AND DRS. RINKEL AND BALYEAT

Dr. Milton B. Cohen, Cleveland: I agree that this examination of the nasal smear or of the sputum smear is of some importance in the diagnosis of the case that is on the borderline between allergy and some infection. I have a slide showing the histology of an allergic wheal in human skin removed thirty minutes after the injection of ragweed pollen extract into the abdominal wall of a man sensitive to ragweed. One can see the great number of eosinophils that have appeared in the tissue within this thirty-minute period. If one has this great number of eosinophils in the tissue, in a characteristic allergic reaction, one expects that the fluids exuded by this tissue will contain eosinophils. I believe that this is the explanation for the presence of eosinophils. Dr. Kline of Cleveland and my other associates have made a study of the cellular reaction in specimens removed for histologic study, from ten minutes to twenty-two hours after the production of an allergic reaction. It is interesting to note that within ten minutes there are only a few eosinophils present, that they rapidly increase, reaching 90 per cent of the cells present in the differential count, within about thirty minutes, and that they have practically disappeared in three hours. There are only a few cells at ten minutes, but 90 per cent are polymorphonuclear neutrophils. One will notice that the count of these drops, when the eosinophils go up, almost to nothing. But, again, at the end of the three hours there is a tremendous rise in polymorphonuclear neutrophils, and they remain high. One will notice also that the mononuclear cells which are not present at all come in so as to phagocytose the débris which is produced by the inflammatory reaction. Therefore, if this test is to be useful, one must get smears shortly after the patient has made the contact with the substance that is going to produce the reaction.

Dr. George Piness, Los Angeles: I want to congratulate Dr. Balyeat on his change of attitude toward migraine, in that in his former papers he considered all migraines from an allergic basis. Today he discusses this type of headache as being an allergic headache. I believe there is a definite distinction between migraine and allergic headache. There is little known about the pathologic changes in migraine and until such time as pathologic material is available one will be unable to discuss these changes clearly. I should like to ask Dr. Balyeat how one can determine from a history whether an individual is sensitive to foods and detect sensitivity from the history alone. It has always been my experience that the physician's guess is no better than the patient's and that is a poor one. I think it is advisable, and certainly more satisfactory, to resort to specific methods and means of determining etiology. Another point is that food allergy per se is rare; in a recent study of 7,000 cases, only 1 in 100 individuals reacted in such a manner. It is difficult for the trained allergist to believe that migraine can be cleared up by the elimination of foods alone. Dr. Feinberg's results as presented today seem less satisfactory than those reported last year. He fails to mention that Dr. Leopold of Philadelphia and I at Los Angeles reported practically 100 per cent of failures and by failure we mean that the patient did not receive any degree of permanent relief as a result of this drastic treatment. The theory of the hyperthermia treatment is based on the fact that, in our observation over many years, patients having intercurrent diseases of an infectious nature in which fever was present were usually free of their asthma. Then with the work on dementia paralytica in which temperature was the therapeutic measure we decided that perhaps there might be some relation between the type of temperature produced by hyperthermia and that of infectious diseases that produce increased temperature, and that relief might be given to the person with chronic intractable asthma. Therefore a series of patients was treated in a similar manner to that described by Dr. Feinberg, with rather interesting results. The patient's temperature was elevated to 102 or 106 F. and sustained at that point for several hours. However, the results did not warrant continuation of the treatment. We concluded, therefore, that the temperature in acute infectious disease was due to nonspecific protein reaction which gave the relief and was not the result of hyperthermia produced by the high frequency method. Therefore the reactions are quite dissimilar. I do not feel that a remission of two days or even twenty weeks is evidence of cure or improvement. It is not an uncommon occurrence for the patient with even the most intractable asthma to have such a period of freedom with or without any treatment. I should consider his interpretation of results as merely an arbitrary one chiefly because any new form of treatment in the chronic sick will psychologically cause the patient to think he has improved.

Dr. M. Murray Peshkin, New York: Because patients with asthma are known to become free from symptoms following an intercurrent infection, accompanied by fever, and because the artificial induction of fever in allergic patients following the injection of various substances temporarily relieves asthma occasionally, diathermy is therefore selected by Dr. Feinberg as the most suitable method for the induction of sustained fever in the treatment of asthma. The impression is gained that the good results reported by Dr. Feinberg are solely dependent on the fever and that the fever parallels in many ways the fever induced by intercurrent infection or that induced by injection of nonspecific substances. There is insufficient evidence to corroborate this assumption. One thing is certain, the patient has fever by whatever means. Extensive clinical experience has taught that the mechanism behind the fever induced by the injection of various substances is not the same as that induced by natural means (intercurrent infection). The relief from asthma by the latter method is also temporary but lasts for longer periods. The induction of sustained fever by mechanical means is recommended by Dr. Feinberg to replace the injection method, minus the so-called dangers of the latter method, in spite of the fact that the nonspecific injection method of treatment is more direct and more closely parallels the workings of the defensive mechanism brought to play by the fever associated with intercurrent infection. The results at the best, with either method, are only temporary and disappointing. It is apparent that it is not the fever itself that brings about the temporary relief. In other words, the fever is only an incidental phase in the whole picture. Dr. Feinberg treated this group of asthmatic patients with sedatives also. I should like to know whether he has also continued the restriction of all other methods of treatment which he previously employed, to the induction of this sustained fever treatment. Much to my surprise, he speaks of various untoward symptoms which, when alarming, indicate that one should discontinue this so-called harmless diathermy treatment. Finally, it should be borne in mind that various nonspecific substances have also been used without the induction of fever and have also brought about some fairly good results.

Dr. Alfred M. Goltman, Memphis, Tenn.: The cellular theory of allergy as advocated by Kolmer and others is the one that is accepted at present, but one should not forget that all allergic reactions or symptoms, so to speak, are produced through the autonomic nervous system and the end-result is a localized or general cellular reaction. Now, it is a fact that in old asthmatic patients the chest serves as a focus of infection, which may be dormant or active. When increased temperature is produced, as by diathermy, activity in the chest is increased; toxin production is increased. This serves as a sedative or poison to the autonomic nervous system, so that it is not so highly irritable and, therefore, bronchial spasm and the like from this source is greatly diminished. Individuals who are asthmatic and develop acute infectious diseases are relieved in many instances of their asthma and the relief may last for months. Is it due to the fever? I doubt it. It seems to me that it is more likely due to the toxins of the disease and their secondary effect either on the autonomic nervous system or on the body cells themselves. Recently I observed an epidemic in children in whom the postauricular lymph nodes were swollen and tender at first. After two days the children would develop a generalized skin eruption similar to measles. The temperature was not above 99 F. at any time. The children were perfectly comfortable. Five of them were asthmatic. On the day following the appearance of the skin eruption, their asthma subsided after having persisted for a month or more. The subsidence of the asthma certainly could not be attributed to fever as there was none to speak of, but I believe it was due to the production of a toxin and that this toxin relieved the children of their asthma by cellular reaction or a sedative action on the autonomic nervous system. To sum up, I wish to say that diathermy may be of benefit in some cases of intractable asthma but that I do not believe that the relief obtained is due to the temperature production per se but to the sedative effects of toxins (from old foci of infection) stirred up, so to speak, by the temperature and having a specific sedative action on the autonomic nervous system or the body cells themselves.

Dr. N. F. Thiberge, New Orleans: While listening to the papers I have tried to catch the different ideas and correlate them all in one harmonious conclusion. A point brought out reminded me of an experience that I had with an allergic patient. When she first presented herself the allergic tests were attended by quite a local reaction. One year after, she gave me the history that she would wake up every morning with an attack of hay fever, and the local site of the previous test would enlarge, inflame, remain swollen as long as the attacks lasted, and then disappear. I directed her every morning when the reaction appeared to massage it but not to massage it too long. Once she tried to massage it more than five minutes and was overcome. She had evidence then of mild anaphylaxis. The point brought out by this is that by massage some antibodies were detached from the cells, and the reaction didn't take place in the tissue but was allowed to take place in the blood stream, where it did not cause any disturbance. I have been trying to correlate that with the diathermy of Dr. Feinberg. It is well known that allergic patients have low blood pressure and that their circulation is sluggish. The antibody being in the cell itself has been well brought out by Rich and Lewis. Might it not be that the effect of the diathermy would be to transfer the reaction by its effect on the circulation: to take the antibodies out of where they are and transfer them into a moving stream, where they can be neutralized by the allergen and produce no reaction whatever? The doctor reports that the eosinophils were not found increased. Might it not be that the paucity of eosinophils in these cases was caused not by the diathermy but by a previous condition of lack of resistance? When the antibody and the allergen meet in the cell itself, they produce the formation of a third substance, and it is only on the production of the third substance that one has the irritation. If this fight is transferred from the cell into the blood current, or into organs that are not shock organs, the reaction takes place without disturbance. In my experience with many thousands of cases during eighteen years, I am more inclined to side with the experience of Dr. Balyeat that one may have, though rather rarely, the reaction to an individual food, the removal of which eliminates the symptoms.

Dr. B. G. Efron, New Orleans: At the last meeting of the Association for the Study of Allergy, I was discussing with some of the men a fever reaction that I was getting with house dust and pollen antigen. Up to Saturday I thought I had something of therapeutic value, because in three of the cases in which fever developed without the ordinary constitutional reaction, the asthma seemed to disappear. But in the last case and in two of the other cases there has been a return of the trouble. I find now that the fever has absolutely nothing to do with the effect on the clinical course of the asthma. The patients that developed fever are no better than those that never got fever. As for the paper of Drs. Rinkel and Balyeat, I wish I knew just what to call "migraine." The symptom complex described as migraine varies with the author. With reference to getting food histories in cases of headache, I have had the same experience that Dr. Piness has had. When I ask a patient whether any food bothers him, as a rule he says: "Sweets and greasy foods usually brother me." That, of course, in allergy is not of great help. My experience with pure food allergy has been similar to that of Dr. Piness. I rarely see a person who is sensitive to foods and foods alone. Usually, here in New Orleans, anyway, inhalant allergy complicates the food cases. I believe that a small number of headaches, so-called migraine, are due to specific foods, but that, in the great majority of cases, if one checks these patients over a long enough period one will find that the relief obtained by the omission of certain foods has been just a transitory affair.

Dr. Clyde Brooks, New Orleans: I have come to the idea (I don't say conclusion) that the fever seen in protein therapy is not essential to improvement in the infectious diseases. In my experience, nonspecific protein is not so efficacious in asthma as it is in infections. In asthma, I find that intravenous injections of small doses of typhoid vaccine are more effective. However, I believe that work such as that done by Dr. Feinberg ought to be continued. As to the relative danger of artificial fever and protein shock, I should prefer the artificial fever. It seems to me that it would not be necessary to press this fever to a high point. Why not use a lower temperature for a longer period?

Dr. I. S. Kahn, San Antonio, Texas: As far as the febrile treatment of asthma is concerned, the fact that similar remissions in the chronic asthmatic state are often seen in pregnancy, which is not accompanied by fever, suggests that the occasional remissions in asthma during febrile infections may be due to the cellular reaction mentioned by Dr. Goltman, and not to the temperature. It is well known that the febrile infections of the respiratory tract actually tend to increase or even initiate the asthmatic symptoms and state. Also, cases of asthma due primarily to any specific antigen may be made decidedly worse by nonspecific agents, such as cold, heat, dust or odors. Hence, the procedure seems to me to be irrational and, at times, dangerous.

Dr. Ray M. Balyeat, Oklahoma City: Dr. Piness asked whether, by history, the food that was causing the patient's migrainous symptoms could ever be detected. In answering that question I should like to ask those who are doing allergic work if it is possible, by history, to detect whether horses would cause a man to have asthma if he came in contact with them, or, by history, if it is possible to detect the fact that orris root brings on hay fever in women who use highly scented cosmetics. Certainly it is true that, in many patients, one can detect by the detailed history at least one or more of the offending foods in the cause of their headaches. Some patients can tell, without any question, the exact food that produces typical migraine, and in referring to migraine here I mean the type of headache that has evidence of cortical involvement. There is no question about that. I should say that there are patients who are sensitive to food and food alone. That is unusual, however, because an individual born with the ability to become sensitive to food ought to become sensitive to inhalants, and they usually do. It is not uncommon in children, for example, to find them sensitive to food and food alone. Later in life, however, they usually develop a sensitivity to inhalants. In practically all the cases that I have reported today, when the foods to which the patients were sensitive were removed from the diet their headaches were relieved, and on putting the foods back into the diet I could reproduce the headache. Dr. Eyermann reported a series of similar cases. Dr. Vaughan has reported similar types of cases, that is, cases in which he could remove the offending food from the diet and relieve the headaches, and could precipitate the headaches by again giving the foods. There are some points in the paper which I barely mentioned, in which I am extremely interested, one being the fact that from the figures it appears in previous work that migraine frequently starts early in life, at least 30 per cent of the patients showing symptoms before 10 years of age. The second point of interest is that, the more classic the picture, the better the results. That is, those who have attacks coming periodically, not regularly, with prodromes and symptoms of cortical involvement, such as scintillating scotomas and sensory and motor symptoms, are the ones who get the best results. Thirdly, epilepsy was uncommon in patients who suffer from headaches due to specific sensitization and headaches in their family tree are uncommon. Somebody reported a series of 110 cases of headache which he spoke of as migraine due to dysfunction of the pituitary. In this series of sixty-five cases that I have reported the average weight of the women was 123 pounds, the average weight of the men was 154 pounds, the average height of the women was 64.26 inches and the average height of the men 67.48 inches. One can see from these figures that the average weight of both the men and women is about the normal for their height. In other words, it appears from our study that probably the dysfunction of the pituitary plays but little part in symptoms that are spoken of as migraine.

Dr. Samuel M. Feinberg, Chicago: One who does allergy work sees over a period of years certain patients who are kept under observation six months, a year, six and seven years, to whom one can give no benefit at all. I mean that a certain number of patients fall in this category, and they have their asthma daily; one tries everything one knows of and then institutes a new method of therapy in which, if any results at all should be obtained, it would be encouraging. All these effects are as the result of one single or one double treatment. By double treatment I mean one treatment two or three days apart and then stopped. If a remission such as this occurs, is one to believe that it is a natural variation in the course of the asthma? If this is merely a psychologic influence, which would happen with any sort of treatment, well and good. If it is the psychologic effect one gets results from, I am for psychology. If that is the psychologic effect of fever treatment, I am going to continue to use it. I can see no reason why this treatment should be more dangerous than foreign proteins and certainly it ought to be less dangerous, because, if for no other reason, one can control the temperature. As to Dr. Peshkin's question, whether I used other treatment during the same time, that might confuse the picture, I used plenty of other treatment prior to the fever therapy. During and subsequent to the fever therapy, I was careful not to use any treatment whatever unless the patient had a relapse. There were three patients who have had from twenty-two to forty-eight weeks relief, and three patients who have had from twelve to twenty-two weeks, something that I couldn't do before with the same class of patients. I think Dr. Thiberge misunderstood me in regard to the eosinophils. I meant that they become lower during the treatment. The eosinophilia returned subsequently, a day or two later. In conclusion, I want to say this work is not advocated as a means of supplanting any type of therapy or any type of procedure in the management of asthmatic patients. It is merely suggested as a possible aid to a certain class of patients whom we are only too glad to wish on one another.

ATYPICAL FACIAL NEURALGIA

DAVID C. WILSON, M.D.
UNIVERSITY, VIRGINIA

The face has become almost synonomous with the personality. Conclusions are reached regarding a person by the regularity or irregularity of his profile. The emotional reaction, the mood and even the character are supposed to correspond to the facial expression. When we say to some one, "Look at me," we mean, "Look at my face." A woman's chief pride is her face. We speak of her face as her fortune. We are told to face our difficulties, and when our failures or shortcomings are exposed, we lose face in the community. To a Chinaman to lose his face is a major calamity. Often it is said that certain people as well as certain things give us a pain in the face. If the ego could be located, it would be placed behind the eyes, but if there is any portion of the body that could represent what we wish other people to think we are and which is the physical manifestation of the ideals of the ego, it is that part of us which meets the constant scrutiny of the world and portrays or conceals our sorrows, our joys and our conflicts. The combination of blood vessels, nerves and muscles that permits this facility of outward expression, as well as of suppression, must be a well organized, finely tuned mechanism. Therefore it is no wonder that shocks to the pride, long suppressed regrets and difficulties recognized but not allowed to reach the surface would cause a functional disturbance of this unit that could become a chronic source of irritation.

Neuralgias of the sensory nerves of the face were described long ago, but Sluder[1] was the first to develop the theory of a neuralgia attributed to the sympathetic nervous system. His syndrome was fairly definite, and he felt that he cured patients so afflicted by injections into the sphenopalatine ganglion. His description of the condition is identical with the description of a symptom complex now given the name of atypical neuralgia of the face, except that he included the migraine types of pain and probably some true tics in his series. In 1920 Cushing[2] wrote of this type of neuralgia, calling it the neuralgia accredited to the sphenopalatine ganglion. He reported the case of a patient, also treated by Sluder, who was not relieved by removal of the sphenopalatine ganglion, and he therefore concluded that the relief sometimes obtained from injections into this ganglion accrued from an accidental paralysis of a nearby maxillary branch of the trigeminal nerve. He also mentioned that occasionally, following operations for major trigeminal neuralgia, there was a residual discomfort in the face similar in many respects to the so-called neuralgia of Sluder.

Frazier[3] studied the symptom complex thoroughly. In 1924, 1925 and 1928, he applied the same atypical neuralgia of the face to the condition, classifying the

---

From the University of Virginia Hospital.

Read before the Section on Nervous and Mental Diseases at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Sluder, G.: Headaches and Eye *Disorders of Nasal Origin*, St. Louis, C. V. Mosby Company, 1918.

2. Cushing, H.: The Major Trigeminal Neuralgias and Their Surgical Treatment Based on Experiences with Three Hundred and Thirty-Two Gasserian Operations, Am. J. M. Sc. **160:** 157 (Aug.) 1920.

3. Frazier, Charles H., and Russell, Ethel C.: Neuralgia of the Face: An Analysis of Seven Hundred and Fifty-Four Cases with Relation to Pain and Other Sensory Phenomena Before and After Operation, Arch. Neurol. & Psychiat. **11:** 557 (May) 1924; Pain Phenomena of the Face, Their Origin and Treatment, with Special Reference to Trigeminal Neuralgia, Am. J. M. Sc. **169:** 469 (April) 1925; Atypical Neuralgia: Unsuccessful Attempts to Relieve Patients by Operations on the Cervical Sympathetic System, Arch. Neurol. & Psychiat. **19:** 650 (April) 1928.

neuralgias of the face as follows: first, neuralgia due to infection of the teeth and sinuses, which involves a more or less constant, throbbing pain that subsides with the inflammation; second, postherpetic neuralgias, with a history of rash, constant in character and accompanied by hyperesthesia of the skin; third, neuralgias due to tumors of the gasserian ganglion, which show objective cutaneous changes and hyperesthesia of the cornea; fourth, painful phenomena of the face, which are associated with hemicrania or migraine; fifth, atypical neuralgia, and, sixth, major trigeminal neuralgia.

His description of atypical neuralgia is classic.

> 1. Distribution: (a) Pain is not referred to the peripheral distribution of the nerve, that is, not to the lips, chin, ala of the nose, rather to the cheek, temple, orbit, in front of or behind the ears, and occasionally to the jaws. (b) The pain does not radiate along the course of one or the other nerve tract, it seems unrelated to any anatomic distribution. It will jump across from one zone of the three divisions to another but never to the periphery. (c) The pain extends beyond the trigeminal territory, behind the ear to the submaxillary region, to the shoulder and arm. 2 Character. In the majority of cases the pain is described as drawing or pulling. The thought of pressure disturbance seems dominant, the tissue of the region feels as though under tension; or the pain may be described as burning, an ache sometimes boring or throbbing rather than cutting, stabbing, or tearing It is almost always seated deep in the orbit, deep in the cheek or temple not superficial or terminal. What is particularly noteworthy is that it is constant and not intermittent or paroxysmal though varying in its intensity. It is relieved by opium and is often as bad by night as by day.

Frazier also noted that after trigeminal operation in patients with complete anesthesia of the face there were sometimes the same tension and paresthesias in the paralyzed areas as were found in patients with atypical neuralgias who were not operated on. In nine cases of atypical neuralgia he removed the sphenopalatine ganglion and stripped the sympathetic plexus from the carotid artery, without relief. Five of these patients had had previous section of the trigeminal root, but the combined operation did not relieve the pain. He mentioned one patient who was cured by Christian science, but Frazier was able to find nothing else that would give relief. It seemed characteristic of the condition that any operative procedure made it worse. Glaser [4] analyzed one hundred and forty-three cases of atypical neuralgia. He spoke of their psychogenic nature, but emphasized the lack of success with psychotherapy as well as with other types of therapy. Glaser, Frazier and others who have operated on the cervical sympathetic ganglion with the patient under a local anesthetic mention the pain caused in the face by stimulation of the superior sympathetic ganglion in the neck, but agree that they are unable to relieve atypical neuralgia by sympathectomy. Max Peet [5] believes that he can relieve some patients by separating the ganglion from the vagus and the glossopharyngeal nerve, as well as from the carotid. He is, however, not enthusiastic over his results.

In the meantime the sensory supply of the face has been investigated. Hunt [6] described a zoster zone in the ear and an otalgia that he considered secondary to involvement of the geniculate ganglion. Davis [7] showed that deep sensibility, certainly pain sensation due to pressure, was transmitted by the seventh cranial nerve. Fay [8] demonstrated the overlapping of the cervical nerves into the trigeminal area and described a sensory area in the external ear supplied by the vagus nerve. Doyle,[9] Dandy [10] and Stookey [11] have investigated glossopharyngeal sensation and the neuralgia developing from its involvement, and have described a syndrome in many ways similar to major trigeminal neuralgia but suggestive in its distribution of the atypical type. Stookey states that the attacks of glossopharyngeal neuralgia are paroxysmal, with sudden, severe pain beginning in the throat at the base of the tongue, in the region of the tonsils, and radiating to the area in front of the ear and in some instances down the neck. It is described as sharp, stabbing and stinging. The attacks are frequent, and there is a feeling of dryness in the mouth. Ranson [12] has described unmyelinated fibers in the trigeminal nerve that soon after entering the pons turn caudad into the descending trigeminal root. He believes these carry the sensation of pain. Dandy [13] stated that he can relieve pain in the face by partial posterior section of the trigeminal root close to the pons, without disturbing other sensation. Elsberg [14] suggested that this was due to the section of the unmyelinated fibers described by Ranson. Dandy [15] believes that the abnormal sensations suggestive of atypical neuralgia experienced after section of the fifth nerve are psychogenic. Finally, Davis and Pollock [16] investigated the pain produced on stimulation of the superior cervical sympathetic ganglion in cats. They found that in order to obliterate the sensation, it was necessary to section the posterior cervical roots as well as the trigeminal. They concluded that the stimulation of the sympathetic ganglion produced a disturbance in the deep structures of the face, which, in turn, produced an irritation of sensory nerve endings, thus giving a sensation of pain. Davis [17] explained the appearance of this sensation after trigeminal section as resulting from the irritation of the sensory root of some other cranial nerve.

It may be stated in summary, then, that the sensory supply of the area involved in the atypical neuralgias is from the posterior roots of the cervical nerves, the vagus, the facial, the glossopharyngeal and the trigeminal nerves. There is much evidence, anatomic and experimental, to indicate that there are no afferent fibers supplying the face present in the cervical sympathetic system, but that the sympathetic is in some way involved in the condition under discussion. It also seems that removal of the trigeminal supply does relieve a few patients, while section of fibers from the vagus and glossopharyngeal nerves relieves others; sympathectomy alone does not relieve. The symptom complex of atypical neuralgia, however, is similar and seems to involve the same mechanism as both the migraine-like attacks that accompany or follow hemicrania and the troublesome discomfort occurring in the anesthetic area following trigeminal section, but the neuralgias of the individual cranial nerves, the vagus, the facial, the glossopharyngeal and trigeminal nerves, are separate entities and should not be confused with this condition.

---

[4] Glaser, Mark A · Atypical Neuralgia, So Called A Critical Analysis of One Hundred and Forty Three Cases, Arch Neurol & Psychiat. **20**: 537 (Sept) 1928

[5] Peet, Max Minor The Role of the Sympathetic Nervous System in Pain Affections of the Face, in Vegetative Nervous System, Association for Research in Nervous and Mental Diseases, Baltimore, Williams & Wilkins, 1931, p 633

[6] Hunt, J. Ramsey. Otalgia Considered as an Affection of the Sensory System of the Seventh Cranial Nerve, Tr , Section on Otology, New York Acad Med , Oct 11, 1907.

[7] Davis, Loyal E · The Deep Sensibility of the Face, Arch. Neurol & Psychiat **9**: 283 (March) 1923

[8] Fay, Temple· Surgical Relief of Pain in Extensive Malignant Disease, with Special Reference to Section of the Sensory Branches of Vagus for Deep Pain in the Ear, J. A M A. **9**: 375 (Aug 11) 1928

[9] Doyle, John B A Study of Four Cases of Glosso Pharyngeal Neuralgia, Arch Neurol. & Psychiat **9**: 34 (Jan) 1923

[10] Dandy, Walter E : Glosso Pharyngeal Neuralgia (Tic Douloureux)· Its Diagnosis and Treatment, Arch Surg **15**: 198 (Aug) 1927

[11] Stookey, Byron Glosso Pharyngeal Neuralgia, Arch Neurol & Psychiat **20**: 703, 1928

[12] Ranson, S W. Cutaneous Sensory Fibers and Sensory Condition, Arch Neurol & Psychiat **26**: 1122 (Dec) 1931

[13] Dandy, Walter E : Certain Functions of the Roots and Ganglia of the Cranial Sensory Nerves, Arch. Neurol. & Psychiat. **27**: 24 (Jan) 1932

[14] Elsberg, in discussion of Dandy (footnote 13, p 27).

[15] Dandy, Walter· Discussion (footnote 13, p 28)

[16] Davis, Loyal, and Pollock, Lewis J · The Role of the Sympathetic Nervous System in Production of Pain in the Head, Arch. Neurol. & Psychiat **27**: 284 (Feb.) 1932.

[17] Davis, Loyal: Discussion (footnote 16).

Seven cases of discomfort of the face with the characteristic of atypical neuralgias are herein reported. Three of these patients had had the injection into the sphenopalatine ganglions, four had had teeth removed because of pulp-stones, and all had had much work performed on the nose and on the sinuses.

Case 1 —A woman, aged 45, entered the hospital on March 28, 1932, for treatment after being under observation for several months She gave a history of migraine headaches for many years, which ceased with the production of artificial menopause five years before Soon after that, however, the facial pain developed. It was deep and constant, and extended from the nose across the right malar bone to the ear. There was subjective numbness above the eye, but no pain. At times, however, the pain became severe and paroxysmal, and extended down the neck into the shoulder. The sternomastoid would seem swollen and knotted, she would become nauseated and vomit. The only relief she had obtained during the five years was a six months' period when she was away from home, but since November, 1931, her pain had become severe, and at the time of admission she was having paroxysms three and four times a week The pain seemed almost unbearable, but the emotional reaction to it was even more marked, yet the patient was in good physical condition for one suffering so constantly. Her father and mother had separated soon after her birth; she was raised by her mother, who put her whole life into the child. The girl married at the age of 16. She was active socially for a while, but because it was necessary for her to dominate every situation, she gradually lost her grip on social affairs Five years before I saw her her husband began to drift away, she became suspicious of him, spying on him and watching him closely. Last fall her oldest son, now 25, whom she had tried to possess completely, left home to work in a neighboring town. In November, at the time of her latest exacerbation of symptoms, she became convinced that he was having an affair with a married woman and spent much of her time spying on him and checking his actions. She even mailed her evidence to his employer in order to have her son discharged; she was much upset when this was not carried out. She and her mother do not get along, but her mother stays in the home, caring for the youngest son and running the household

While the patient was in the hospital, she had complete relief from her pain, except on one occasion, when visited by her mother. Since discharge, after the possible psychogenic basis of her difficulty was explained, she has had no pain She stated that she had known for years that the only way for her to get relief was to leave home for a short visit This patient appears to illustrate the migraine-like type of atypical neuralgia. Her mental state could probably be diagnosed as a paranoid condition She has the egotism and the self-righteousness of the true paranoiac. Her facial pain could be interpreted as an exteriorizing process, similar to a paranoid delusion Probably as her delusions become more fixed her pain will disappear permanently

Case 2 —A woman, aged 49 entered Clifton Springs Sanatorium and Clinic in April, 1926 There were an infected right antrum and a retracted tympanic membrane of the right ear, but her complaints were out of all proportion to these symptoms She was extremely agitated and obsessed by a severe grinding sensation in the upper alveolar process, just to the right of the midline, apparently located deep in the bone, between the roof of the mouth and the floor of the nose. She would point to it constantly saying, "It is there, it is there." Pain of an indescribable nature would extend from this region into the ear and down the shoulder. She frequently said, "This pain is so terrible that I can't bear to talk," yet she talked constantly and with seeming facility. She had some buzzing in the ears, and suffered from dizziness and general nervousness. She had been an invalid for five years because of her "agony," although she had had much treatment. The antrum was successfully treated, without improvement in her nervous condition. Psychotherapy was of little avail. She accused her husband of infidelity and her one child of deserting her. She was suspicious and difficult to handle In 1928, however, she returned without the facial pain, although she had many pains elsewhere as well as a slight discharge from the antrum. She confessed that she had separated from her husband soon after her return from her previous admission, because he frankly told her he loved another woman and intended to live with her. The patient is now living on an allowance in the home of her youth She travels extensively, but still complains bitterly that her husband seems to rejoice in the proof of her former suspicions. Up to October, 1931, there had been no return of the pain.

Case 3.—A woman entered the hospital in September, 1931, to have an alcoholic injection into the left maxillary branch of the trigeminal nerve Her neuralgia was of exactly the same type as that described by Sluder, and she had had it for eight years. The pain extended from the ala of the nose across the cheek to the mastoid region, and then down the neck. It was constant and deep, and had periods of varying intensity. A breeze blowing on her face made the pain severe; perspiring increased it. She stated that it caused the utmost agony; yet she was conducting a big business and was a successful aviatrix. Roentgenograms showed many pulp-stones, which she had been advised to have removed. It was then discovered that about eight years previous to entrance, at the time the pain started, she and her husband had worked "the old badger game" on a wealthy and prominent citizen. The remuneration from this had started her business, and, although she apparently went about unconcerned, this pain had developed in the face. The discussion of the episode brought on a severe reaction in the face, and, although she did not return, she wrote that she had remained free from pain until she had one of her teeth removed. She is now under treatment by an allergist, who found her sensitive to several irritants. She is improving under his therapy It is possible that an allergic reaction, as well as the reaction to some psychogenic irritant, might produce this syndrome, but it is doubtful in this case whether dusts or foods could be as powerful an agent as this suppressed memory

Case 4.—A man who entered the hospital first in 1917 and again in 1931 had a domineering but devoted mother, an easy-going father and two younger sisters. As a boy he felt that he could never accomplish a desired objective, because something always held him back. At the age of sixteen he began to have a sense of pressure at the base of the nose, accompanied by a drawing sensation across his face. This caused him to stop school, but he experienced no relief until he entered an embalming school in Cincinnati, at the age of 21. While there he relaxed for the first time, had no pain and did splendid work. On his return home, however, the pressure and tension returned. He had his nose operated on; his mother died, and, finally, he had all his upper teeth removed. For the ten following years the pressure had been continuous. He felt as if wires were drawing his face. On admission he was terribly agitated; his face felt numb, and the bones at the root of the nose were growing into each other; his condition suggested an agitated depression, with marked somatic delusions, yet many of his complaints were those of atypical neuralgia. He went to a private asylum, but left there without relief. Since then, however, he happened to go to Washington, D. C., where he fell in with a very Bohemian group, and soon began to lead a changed life. He returned to his home town in a mildly elated condition and has remained happy ever since. His conduct certainly suggests a hypomanic state, but with the change in behavior came the cessation of pain.

Case 5.—A woman, aged 45, was first seen in October, 1926, and at that time a diagnosis of right-sided sphenopalatine neuralgia was made. The pain was constantly present above her right eye, in her right temple, behind her right ear and in the back of her neck; occasionally it would extend down her neck and into her shoulder. She had spasms of the muscles of the throat, and there was pain when she talked, especially when she gave a hearty laugh. This pain finally caused her to give up her job as teacher and to become a supervisor. Three years ago the pain subsided, but about that time she began to be suspicious of her superiors. Gradually a definite delusion of persecution, well organized and greatly detailed, developed. She is perfectly calm unless this condition is discussed and then her agitation and emotional display are similar to those of agitated depression, which in turn suggests the emotion of atypical neuralgia. In this case again is displayed the egotistical, self-centered personality of the paranoiac patient. The present diagnosis is a paranoid condition, although it is possible that an involutional melancholia will develop later. The most interesting point in this case is the possible substitution of the paranoid delusion for the atypical neuralgia.

Case 6.—A woman, aged 39, was first seen in October, 1930. She first experienced pain in both sides of the neck at 12 years of age. She noted that it returned whenever she was disappointed or emotionally upset. There was no pain in the face, however, until after her husband deserted her, taking all their savings for a trip to New York with another woman. The patient obtained a job and supported her family for a while; then pain developed in the face, and she has been practically an invalid for five years. The pain involves the root of the tongue and the hard palate, and extends across to the right ear and down the neck. There is also some pain on the left side. It is "agony" for her to speak, yet she talks with ease and almost without ceasing. She is suffering "death," but she is the picture of health. Injections have been made into both sphenopalatine ganglions, with relief for only three or four days. Injections were made into the right maxillary division of the trigeminal nerve, but pain returned as promptly as it did after the earlier injections. Injection of procaine into the painful area relieved just as well; this suggests a psychalgia. Her symptoms, her emotional display and her introspection are all typical of the atypical neuralgia. So far nothing has relieved her. Psychotherapy has been of no value.

Case 7.—A woman, aged 36, exhibited symptoms still more suggestive of an obsession. In May, 1931, she began to complain of a secretion with sweet taste which she felt flowing down the left upper incisors. With this she experienced a deep drawing sensation extending into the palate. The most striking thing, however, was the complete upset of her life caused by this slight complaint, as she had given up everything to search for a cure. She was agitated and unable to rest. It was discovered that she had entered the bar in May, 1931, after graduating from a night law school. She had been given a case immediately and had been developing it successfully when this sweet secretion developed, upsetting her to such an extent that she had been forced to give up, not only her case, but her practice of law. Her condition was explained to her as an obsession, but she still went from place to place. Finally, after several weeks in a sanatorium, she was persuaded to accept this conclusion and to try to adjust her life around it. From a superficial point of view it appears that her abnormal sensation was a defense mechanism protecting her from the practice of law. The discomfort showed the distribution, the emotional content and some of the symptoms of a case of atypical neuralgia. She now is entirely free from facial discomfort.

Of the seven patients presented, five had typical atypical neuralgia, one had the migrainous type, and one appeared to have an obsession. All except the last patient had discomfort for many years without relief. All but two now have entire relief, and one is improved. Two patients have definitely paranoid personalities. One of these was relieved from neuralgia when her delusion developed; the other was relieved when removed from an irritating domestic situation. Another patient seems to have manic-depressive psychosis and is now relieved while in a hypomanic state. One patient was relieved by the adjustment of a domestic situation, while another was relieved temporarily by confession and is now experiencing some relief by removal of dust and by eating certain foods. Finally, the one patient who shows no change or improvement is relieved for three or four days by the mere injection of procaine.

From these cases we can conclude that, in addition to the picture described by the neurosurgeons, three other characteristics of atypical neuralgia exist. These are as follows: First, the emotional disturbance and the change in the behavior are out of proportion to the symptoms; second, the personality of these patients is often of a similar type—they are very sensitive, very egotistical and self-centered, in most cases sublimating for an underlying feeling of inferiority, thus making the defense of the ego-superiority so essential; third, their physical well-being seems almost impossible in the presence of such suffering, and suggests that the pain acts like a paranoid delusion, enabling the individual to exteriorize a painful conflict, thus protecting the personality and benefiting body functions. From these cases, also, the conclusion is reached that some cases of atypical neuralgia are psychogenic in origin, some are based on deep conflicts and are part of a developing psychosis, and others are based on a more superficial conflict. We should feel with Davis and Pollock that pain is probably caused by a sympathetic disturbance in the face that is translated into pain by the sensory nerves. In treating such conditions, psychotherapy should come first. Allergy should be tried, but, if surgery is to be attempted, unless the sensory symptoms suggest one particular cranial nerve, there is little likelihood that relief will be obtained unless all cranial nerves are severed. Atypical neuralgias, finally, are thought to be due to a sympathetic disturbance in the face, which may arise from many irritants, but especially from intrapsychic conflicts in which there is danger of loss of self-esteem. The pain leaves when the conflict is solved, and relief can be obtained through psychotherapy.

ABSTRACT OF DISCUSSION

Dr. Edgar F. Fincher, Jr., Atlanta, Ga.: During the past eighteen months it has been my privilege to share offices with Dr. J. D. Thomson, an otolaryngologist, who has interested himself in this particular type of atypical neuralgia: pain in the temporal region, down over the zygoma, behind the ear, and along the trapezius muscle. Using a solution of magnesium sulphate and magnesium borate, in glycerin, he places a small tampon in the auditory canal down against the drum membrane. Over 50 per cent of his results have been noted in three or four hours afterward. Some of these patients have gone as long as five or six months before it was necessary to change the tampon. He has followed these cases for several years without recording his results. I have his permission to say something of his results. Quite a few patients have been treated without any suggestion whatever as to the results or what might be expected following the tampon. No claims have been made as to the psychic or physiologic basis for this treatment. One day a Negro came in with an iritis of traumatic origin, complaining of supra-orbital pain and pain back of his ear and down his shoulder; the pain was so severe that he had had no relief from narcotics. As an experiment, a tampon was placed in his ear and for the first time in two nights he slept comfortably. The results in this case can hardly be attributed to psychotherapy. Undoubtedly some of these cases are of psychogenic origin, but so many persons have this type of atypical pain, always in the same location and always of a similar character, that it must be on an undetermined organic basis. The physiologic or pharmacologic basis for the use of magnesium sulphate is not clear but certainly the results have justified its use in the attempt to relieve the pain in these cases of atypical facial neuralgias.

Dr. Carrol C. Turner, Memphis, Tenn.: Dr. Fincher's remarks substantiate Hunt's ideas of the seventh nerve in subserving sensory function to the deep structures of the face and the external auditory canal and may explain the relief in his cases in that connection. The differentiation of the atypical neuralgias from the major trigeminal neuralgia and facial pain of other origin is extremely difficult. The psychogenic origin of pain must be acknowledged, but on the other hand Alfred Harris has demonstrated that emotional upsets, fear, grief and other emotional strains will just as frequently relieve facial pain as cause it. The extensive hook-up in the facial system, as has been demonstrated by Pollock and Davis in experiments in which they faradized the superior cervical ganglion after bisecting the posterior cervical roots and the proximal trigeminal root, demonstrates the large area subserved by the trifacial system and its associated tracts. It is true that any psychologic disturbance will intensify any symptom, and in a condition in which one has an organic cause for facial pain the psychologic element as a cause of acute exacerbations of that pain must be considered. But when one considers the possibilities of facial pain resulting from pathologic changes in the upper cervical spine, viz., spinal spondylitis, or tumors in the soft tissues of the pterygomaxillary fossa, the psychologic element seems to retreat to some extent. A woman whom I saw recently had been told in another Southern city that she had a chancre of the posterior pharynx and she had a syphilophobia. In spite of negative serologic tests she was convinced that she had had syphilis. In relating her history to me in the office she manifested facial pain with atypical paroxysms. Further investigation showed no evidence whatever of syphilis. She was referred to an otologist, who found a tumor in the pterygomaxillary fossa, and after removal of this tumor the patient had an uneventful recovery and there has been no recurrence of pain since.

Dr. David C. Wilson, University, Va.: I never have seen one of these patients relieved by injection of the sphenopalatine ganglion. A study of the literature showed that certainly there were very few instances of relief by any method of therapy and that was one of the points I wanted to make here, as here there were five patients that had been relieved for quite a little period of time, a most unusual circumstance. Dr. Fincher's method of relief, of course, I do not know anything about. Dr. Davis's work on facial nerves is interesting, and when one sees these cases one must think that section of the seventh nerve might give relief. Another point from the psychologic standpoint would be that the injury to the ego is certainly expressed in the face, and it seems to me from a psychologic standpoint that there is every reason why one should expect such injuries to the personality, to the ideals or to the ambitions of the person to be expressed in some disorder of the face. That is, when there is injury to the ego, indeed, when persons seem to be failing in their ambitions of life, there is disturbance in this mechanism which expresses or suppresses the emotions, which is interpreted as pain.

Splenic Anemia.—With the exception of aplastic anemia, all the chronic diseases of the blood-forming organs tend to produce enlargement of the spleen, whether they involve initially the red cells, white cells or platelets. On this account the coexistence of anemia, leukopenia and splenomegaly never justifies an immediate diagnosis of splenic anemia, but for lack of further investigation and observation I have several times seen aleukemic leukemia, essential thrombopenia, and simple achlorhydric and allied anemias masquerade under this too comprehensive diagnosis. Splenic anemia is in reality a rare disease. Enlargement of the spleen and anemia are more commonly the result of an independent disease of the blood-forming organs than of splenic anemia. It is now becoming accepted that splenic anemia is always the result of high pressure in the portal circulation, and that in the great majority of cases this is due to primary disease of the liver, though the morbid change in the liver may be visible under the microscope only. The anemia is the result of the raised portal pressure, as has often been shown in experimental animals. Identical anemia occurs in Laënnec's cirrhosis of the ver. It is unwise to diagnose splenic anemia in the absence signs of raised portal pressure or of liver damage without most careful circumspection.—Witts, L. J.: The Pathology Treatment of Anemia, *Lancet* **1**:495 (March 5) 1932.

EFFECT OF DIGITALIS ON ARRHYTHMIAS OTHER THAN FLUTTER AND FIBRILLATION OF AURICLES

CHARLES W. BARRIER, M.D.
FORT WORTH, TEXAS

AURICULAR TACHYCARDIA

In 1926 Otto and Gold[1] stated that the results obtained in treating patients with paroxysmal tachycardia with digitalis were extremely variable. White[2] remarked that digitalis, even in adequate doses by vein, is usually ineffective during an attack. Levine and Blotner,[3] however, by employing full doses, were more successful. Wilson and Wishart,[4] in 1930, reported the first two cases in which digitalis given intravenously produced marked slowing of the heart rate followed by cessation of the paroxysms. Barrier[5] reported cessation of the paroxysms in six of eight cases.

I do not make this report as a plea for the use of digitalis in paroxysmal tachycardia, but merely to show its effect on the arrhythmia, in the hope that some light may be shed on the mechanism of paroxysmal tachycardia and on the mode of action of digitalis. The patients on whom similar studies have been made and reported in the literature have been under observation for only short periods, and the paroxysms usually terminated spontaneously after brief attacks. My studies on auricular tachycardia are based on two patients whom I have observed for over four years and in whom the paroxysms were not observed to terminate spontaneously.

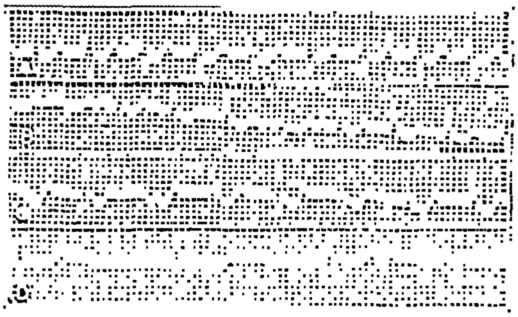


Fig. 1 (case 1).—Nodal tachycardia: reduction in rate and return of sinus rhythm after digitalis: *A*, rate 180 at 11: 55 p. m.; 5 cc. of digalen given at 12 a. m. *B*, rate 165 at 12: 12 a. m.; 5 cc. of digalen given at 12: 24 a. m. *C*, rate 145 at 12: 41 a. m. *D*, rate 55 at 1 a. m.

Case 1.—A woman, aged 21, who had no lesion of the heart, said that her heart rate had been above 160 for the three years previous to seeing me in 1928, at which time she had a supraventricular tachycardia, the rate being 160. Since then sinus mechanism had followed the administration of digitalis and quinidine on numerous occasions, and attacks had been warded off for long intervals by either drug. No physical stimulation of the vagus could restore sinus rhythm. The rate at the inception of a paroxysm was well above 200, but after several hours it slowed to between 160 and 180 spontaneously.

From the Harris Clinic.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

[1] Otto, Harold L., and Gold, Harry: Auricular Paroxysmal Tachycardia: The Effect of Epinephrine, Quinine, Quinidine, Atropine and Digitalis, Am. Heart J. **2**:1 (Oct.) 1926.

[2] White, Paul D.: Heart Disease, New York, The Macmillan Company, 1931.

[3] Levine, S. A., and Blotner, H.: Treatment of Paroxysmal Auricular Tachycardia, Am. J. M. Sc. **172**:660 (Nov.) 1926.

[4] Wilson, Frank N., and Wishart, Shelby W.: Am. Heart J. **5**:549 (June) 1930.

[5] Barrier, Charles W.: Tachycardia, Ann. Int. Med. **5**:829 (Jan.) 1932.

the back of her neck; occasionally it would extend down her neck and into her shoulder. She had spasms of the muscles of the throat, and there was pain when she talked, especially when she gave a hearty laugh. This pain finally caused her to give up her job as teacher and to become a supervisor. Three years ago the pain subsided, but about that time she began to be suspicious of her superiors. Gradually a definite delusion of persecution, well organized and greatly detailed, developed. She is perfectly calm unless this condition is discussed and then her agitation and emotional display are similar to those of agitated depression, which in turn suggests the emotion of atypical neuralgia. In this case again is displayed the egotistical, self-centered personality of the paranoiac patient. The present diagnosis is a paranoid condition, although it is possible that an involutional melancholia will develop later. The most interesting point in this case is the possible substitution of the paranoid delusion for the atypical neuralgia.

Case 6.—A woman, aged 39, was first seen in October, 1930. She first experienced pain in both sides of the neck at 12 years of age. She noted that it returned whenever she was disappointed or emotionally upset. There was no pain in the face, however, until after her husband deserted her, taking all their savings for a trip to New York with another woman. The patient obtained a job and supported her family for a while; then pain developed in the face, and she has been practically an invalid for five years. The pain involves the root of the tongue and the hard palate, and extends across to the right ear and down the neck. There is also some pain on the left side. It is "agony" for her to speak, yet she talks with ease and almost without ceasing. She is suffering "death," but she is the picture of health. Injections have been made into both sphenopalatine ganglions, with relief for only three or four days. Injections were made into the right maxillary division of the trigeminal nerve, but pain returned as promptly as it did after the earlier injections. Injection of procaine into the painful area relieved just as well; this suggests a psychalgia. Her symptoms, her emotional display and her introspection are all typical of the atypical neuralgia. So far nothing has relieved her. Psychotherapy has been of no value.

Case 7.—A woman, aged 36, exhibited symptoms still more suggestive of an obsession. In May, 1931, she began to complain of a secretion with sweet taste which she felt flowing down the left upper incisors. With this she experienced a deep drawing sensation extending into the palate. The most striking thing, however, was the complete upset of her life caused by this slight complaint, as she had given up everything to search for a cure. She was agitated and unable to rest. It was discovered that she had entered the bar in May, 1931, after graduating from a night law school. She had been given a case immediately and had been developing it successfully when this sweet secretion developed, upsetting her to such an extent that she had been forced to give up, not only her case, but her practice of law. Her condition was explained to her as an obsession, but she still went from place to place. Finally, after several weeks in a sanatorium, she was persuaded to accept this conclusion and to try to adjust her life around it. From a superficial point of view it appears that her abnormal sensation was a defense mechanism protecting her from the practice of law. The discomfort showed the distribution, the emotional content and some of the symptoms of a case of atypical neuralgia. She now is entirely free from facial discomfort.

Of the seven patients presented, five had typical atypical neuralgia, one had the migrainous type, and one appeared to have an obsession. All except the last patient had discomfort for many years without relief. All but two now have entire relief, and one is improved. Two patients have definitely paranoid personalities. One of these was relieved from neuralgia when her delusion developed; the other was relieved when removed from an irritating domestic situation. Another patient seems to have manic-depressive psychosis and is now relieved while in a hypomanic state. One patient was relieved by the adjustment of a domestic situation, while another was relieved temporarily by confession and is now experiencing some relief by removal of dust and by eating certain foods. Finally, the one patient who shows no change or improvement is relieved for three or four days by the mere injection of procaine.

From these cases we can conclude that, in addition to the picture described by the neurosurgeons, three other characteristics of atypical neuralgia exist. These are as follows: First, the emotional disturbance and the change in the behavior are out of proportion to the symptoms; second, the personality of these patients is often of a similar type—they are very sensitive, very egotistical and self-centered, in most cases sublimating for an underlying feeling of inferiority, thus making the defense of the ego-superiority so essential; third, their physical well-being seems almost impossible in the presence of such suffering, and suggests that the pain acts like a paranoid delusion, enabling the individual to exteriorize a painful conflict, thus protecting the personality and benefiting body functions. From these cases, also, the conclusion is reached that some cases of atypical neuralgia are psychogenic in origin, some are based on deep conflicts and are part of a developing psychosis, and others are based on a more superficial conflict. We should feel with Davis and Pollock that pain is probably caused by a sympathetic disturbance in the face that is translated into pain by the sensory nerves. In treating such conditions, psychotherapy should come first. Allergy should be tried, but, if surgery is to be attempted, unless the sensory symptoms suggest one particular cranial nerve, there is little likelihood that relief will be obtained unless all cranial nerves are severed. Atypical neuralgias, finally, are thought to be due to a sympathetic disturbance in the face, which may arise from many irritants, but especially from intrapsychic conflicts in which there is danger of loss of self-esteem. The pain leaves when the conflict is solved, and relief can be obtained through psychotherapy.

ABSTRACT OF DISCUSSION

Dr. Edgar F. Fincher, Jr., Atlanta, Ga.: During the past eighteen months it has been my privilege to share offices with Dr. J. D. Thomson, an otolaryngologist, who has interested himself in this particular type of atypical neuralgia: pain in the temporal region, down over the zygoma, behind the ear, and along the trapezius muscle. Using a solution of magnesium sulphate and magnesium borate, in glycerin, he places a small tampon in the auditory canal down against the drum membrane. Over 50 per cent of his results have been noted in three or four hours afterward. Some of these patients have gone as long as five or six months before it was necessary to change the tampon. He has followed these cases for several years without recording his results. I have his permission to say something of his results. Quite a few patients have been treated without any suggestion whatever as to the results or what might be expected following the tampon. No claims have been made as to the psychic or physiologic basis for this treatment. One day a Negro came in with an iritis of traumatic origin, complaining of supra-orbital pain and pain back of his ear and down his shoulder; the pain was so severe that he had had no relief from narcotics. As an experiment, a tampon was placed in his ear and for the first time in two nights he slept comfortably. The results in this case can hardly be attributed to psychotherapy. Undoubtedly some of these cases are of psychogenic origin, but so many persons have this type of atypical pain, always in the same location and always of a similar character, that it must be on an undetermined organic basis. The physiologic or pharmacologic basis for the use of magnesium sulphate is not clear but certainly the results have justified its use in the attempt to relieve the pain in these cases of atypical facial neuralgias.

Dr Carrol C Turner, Memphis, Tenn.: Dr. Fincher's remarks substantiate Hunt's ideas of the seventh nerve in subserving sensory function to the deep structures of the face and the external auditory canal and may explain the relief in his cases in that connection. The differentiation of the atypical neuralgias from the major trigeminal neuralgia and facial pain of other origin is extremely difficult. The psychogenic origin of pain must be acknowledged, but on the other hand Alfred Harris has demonstrated that emotional upsets, fear, grief and other emotional strains will just as frequently relieve facial pain as cause it The extensive hook-up in the facial system, as has been demonstrated by Pollock and Davis in experiments in which they faradized the superior cervical ganglion after bisecting the posterior cervical roots and the proximal trigeminal root, demonstrates the large area subserved by the trifacial system and its associated tracts It is true that any psychologic disturbance will intensify any symptom, and in a condition in which one has an organic cause for facial pain the psychologic element as a cause of acute exacerbations of that pain must be considered. But when one considers the possibilities of facial pain resulting from pathologic changes in the upper cervical spine, viz, spinal spondylitis, or tumors in the soft tissues of the pterygomaxillary fossa, the psychologic element seems to retreat to some extent. A woman whom I saw recently had been told in another Southern city that she had a chancre of the posterior pharynx and she had a syphilophobia. In spite of negative serologic tests she was convinced that she had had syphilis. In relating her history to me in the office she manifested facial pain with atypical paroxysms Further investigation showed no evidence whatever of syphilis She was referred to an otologist, who found a tumor in the pterygomaxillary fossa, and after removal of this tumor the patient had an uneventful recovery and there has been no recurrence of pain since

Dr David C. Wilson, University, Va I never have seen one of these patients relieved by injection of the sphenopalatine ganglion A study of the literature showed that certainly there were very few instances of relief by any method of therapy and that was one of the points I wanted to make here, as here there were five patients that had been relieved for quite a little period of time, a most unusual circumstance. Dr. Fincher's method of relief, of course, I do not know anything about. Dr. Davis's work on facial nerves is interesting, and when one sees these cases one must think that section of the seventh nerve might give relief. Another point from the psychologic standpoint would be that the injury to the ego is certainly expressed in the face, and it seems to me from a psychologic standpoint that there is every reason why one should expect such injuries to the personality, to the ideals or to the ambitions of the person to be expressed in some disorder of the face. That is, when there is injury to the ego, indeed, when persons seem to be failing in their ambitions of life, there is disturbance in this mechanism which expresses or suppresses the emotions, which is interpreted as pain.

Splenic Anemia.—With the exception of aplastic anemia, all the chronic diseases of the blood-forming organs tend to produce enlargement of the spleen, whether they involve initially the red cells, white cells or platelets On this account the coexistence of anemia, leukopenia and splenomegaly never justifies an immediate diagnosis of splenic anemia, but for lack of further investigation and observation I have several times seen aleukemic leukemia, essential thrombopenia, and simple achlorhydric and allied anemias masquerade under this too comprehensive diagnosis Splenic anemia is in reality a rare disease Enlargement of the spleen and anemia are more commonly the result of an independent disease of the blood-forming organs than of splenic anemia It is now becoming accepted that splenic anemia is always the result of high pressure in the portal circulation, and that in the great majority of cases this is due to primary disease of the liver, though the morbid change in the liver may be visible under the microscope only. The anemia is the result of the raised portal pressure, as has often been shown in experimental animals Identical anemia occurs in Laënnec's cirrhosis of the liver. It is unwise to diagnose splenic anemia in the absence of signs of raised portal pressure or of liver damage without the most careful circumspection—Witts, L J · The Pathology and Treatment of Anemia, *Lancet* **1**:495 (March 5) 1932.

EFFECT OF DIGITALIS ON ARRHYTHMIAS OTHER THAN FLUTTER AND FIBRILLATION OF AURICLES

CHARLES W. BARRIER, M.D.
FORT WORTH, TEXAS

AURICULAR TACHYCARDIA

In 1926 Otto and Gold[1] stated that the results obtained in treating patients with paroxysmal tachycardia with digitalis were extremely variable. White[2] remarked that digitalis, even in adequate doses by vein, is usually ineffective during an attack. Levine and Blotner,[3] however, by employing full doses, were more successful. Wilson and Wishart,[4] in 1930, reported the first two cases in which digitalis given intravenously produced marked slowing of the heart rate followed by cessation of the paroxysms. Barrier[5] reported cessation of the paroxysms in six of eight cases.

I do not make this report as a plea for the use of digitalis in paroxysmal tachycardia, but merely to show its effect on the arrhythmia, in the hope that some light may be shed on the mechanism of paroxysmal tachycardia and on the mode of action of digitalis. The patients on whom similar studies have been made and reported in the literature have been under observation for only short periods, and the paroxysms usually terminated spontaneously after brief attacks. My studies on auricular tachycardia are based on two patients whom I have observed for over four years and in whom the paroxysms were not observed to terminate spontaneously.

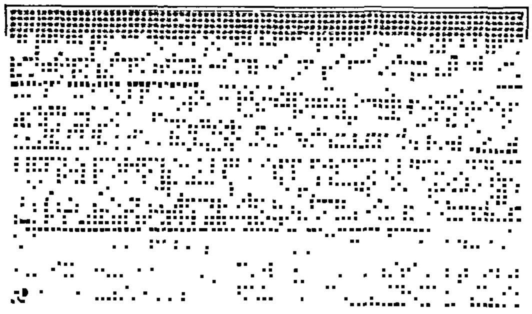


Fig 1 (case 1)—Nodal tachycardia: reduction in rate and return of sinus rhythm after digitalis *A*, rate 180 at 11 55 p m, 5 cc of digalen given at 12 a m *B*, rate 165 at 12 12 a m, 5 cc of digalen given at 12.24 a m *C*, rate 145 at 12.41 a. m *D*, rate 55 at 1 a m.

Case 1.—A woman, aged 21, who had no lesion of the heart, said that her heart rate had been above 160 for the three years previous to seeing me in 1928, at which time she had a supraventricular tachycardia, the rate being 160. Since then sinus mechanism had followed the administration of digitalis and quinidine on numerous occasions, and attacks had been warded off for long intervals by either drug. No physical stimulation of the vagus could restore sinus rhythm The rate at the inception of a paroxysm was well above 200, but after several hours it slowed to between 160 and 180 spontaneously.

From the Harris Clinic

Read before the Section on Pharmacology and Therapeutics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932

[1] Otto, Harold L, and Gold, Harry · Auricular Paroxysmal Tachycardia The Effect of Epinephrine, Quinine, Quinidine, Atropine and Digitalis, Am Heart J **2**:1 (Oct) 1926

[2] White, Paul D Heart Disease, New York, The Macmillan Company, 1931

[3] Levine, S A, and Blotner, H Treatment of Paroxysmal Auricular Tachycardia, Am J M Sc **172**:660 (Nov) 1926

[4] Wilson, Frank N, and Wishart, Shelby W.: Am. Heart J **5**:549 (June) 1930

[5] Barrier, Charles W Tachycardia, Ann Int Med **5**:829 (Jan) 1932

No digitalis was given for two months and no quinidine for ten days, at the end of which the patient entered the hospital twelve hours after the onset of an attack with a rate of 180. Twelve minutes after 5 cc. of digalen was given by vein the rate had dropped to 165, and at the end of forty-one minutes it was 145, another 5 cc. of digalen having been given in the meantime. At the end of an hour the rate suddenly dropped to 55, sinus mechanism being present. The slowing of the paroxysmal rate was due to an increased length of diastole. While quinidine also slowed the rate and then produced sinus mechanism in this patient, the order of events was somewhat reversed. The slowing was principally in the R-T interval. Sinus mechanism resulted much earlier, the rate at first being almost as fast as the paroxysmal rate. A gradual reduction of the sinus rate then followed.

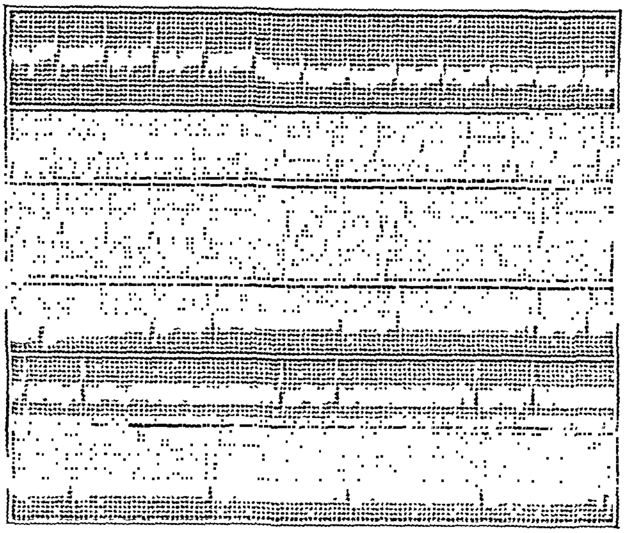


Fig. 2.—Auricular tachycardia. Vagal stimulation (deep breathing).

Case 2.—A man, aged 21, had had tachycardia for six years previous to the present experiments, except when taking digitalis. Sinus rhythm and long periods of freedom from paroxysms had followed massive doses of digitalis on numerous occasions. At the onset of a paroxysm the rate was around 190 or 200, but after a week or so it dropped to 120, but rose rapidly after exercise or excitement.

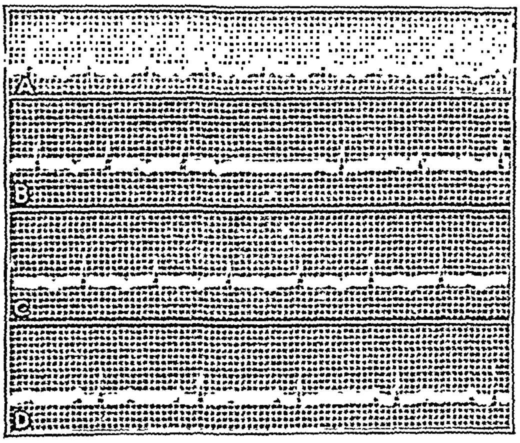


Fig. 3 (case 2).—Slowing of rate and return of sinus rhythm after digitalis: *A*, rate 155 before digitalis. Ten cubic centimeters of digifoline given at 8: 06. *B*, vagus stimulation at 8: 19; 5 cc. of digifoline given at 8: 20. *C*, rate 140 at 8: 26; increased P-R time. *D*, rate 95 at 8: 36; sinus mechanism.

The patient was peculiarly susceptible to vagal stimulation. Figure 2 is a continuous tracing, showing the interruption of a paroxysm by holding the breath after a forced inspiration. In it are noted changes of the P-R interval: auricular-ventricular block followed by sinus mechanism and sino-auricular block with ventricular escape and a period of sinus bradycardia. Pressure on the eyeball increased the P-R time, slowed the rate of the paroxysm and occasionally produced a short run of two to one auricular-ventricular block, which was followed by a sinus block and the inception of sinus mechanism. After all forms of mechanical stimulation of the vagus, sinus mechanism was of short duration.

Quinidine never, even in toxic doses, produced sinus mechanism, although when given by vein it slowed the rate. The P-R time was unchanged. After the administration of quinidine, vagal stimulation further slowed the rate of the paroxysm, but did not produce sinus mechanism.

After discontinuing the use of digitalis for three weeks, the patient entered the hospital with an attack of auricular tachycardia. An intravenous injection of digitalis lengthened the P-R interval, slowed the rate and, in thirty minutes, produced sinus mechanism.

A month later the patient entered the hospital during an attack, with a rate of 145. Atropine and digitalis were given together. Early there were short runs of sinus mechanism at an increased rate. Otto and Gold[1] reported a similar experience. Finally, the auricular tachycardia persisted, digitalis failing to interrupt it as when the vagus was not paralyzed by atropine; neither was the P-R interval lengthened.

In the first case digitalis, possibly through its direct action on the heart muscle in slowing the rate of conduction and in introducing intra-auricular block by an increased refractory period, slowed the rate and abolished the paroxysm, respectively. This is contrary to the usual action of digitalis in cases of circus movement, such as flutter of the auricles, in which its vagal action overrules its direct effect, thus perpetuating the circus movement and increasing the rate by decreasing the refractory period and speeding up conduction.

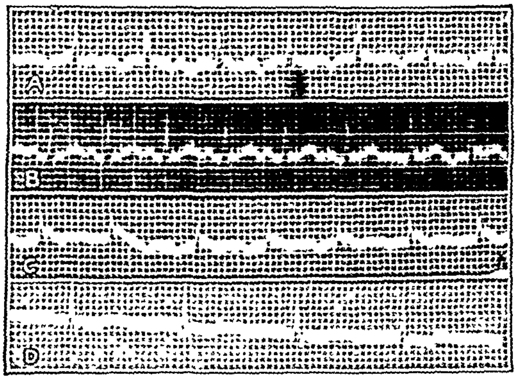


Fig. 4 (case 2).—Auricular tachycardia showing lack of response to digitalis after atropine: *A*, rate 145 at 8: 10; 1/15 grain (0.004 Gm.) of atropine and 10 cc. of digifoline given between 8: 23 and 9. *B*, rate 158 at 9: 10; 5 cc. of digifoline given at 9: 27. *C*, rate 145 at 10; auricular tachycardia. *D*, sinus mechanism next morning.

In the second case the action of digitalis was probably through the vagus by depressing conduction and diminishing stimulus formation. While the exact way in which increased vagus tone abolished the paroxysm is not known, one can be fairly certain that the effect of digitalis was through the vagus; first, because the heart under digitalis behaved almost identically as under physical vagus stimulation, and second, because digitalis failed to act when the vagus was paralyzed by atropine.

In the first case digitalis and quinidine probably acted in the same way qualitatively, but not quantitatively. Quinidine probably effected an earlier and more profound increase of the refractory period. Quinidine in the second case acted directly on the heart muscle, but failed to abolish the paroxysm as it often does in flutter by increasing the length of the circus out of proportion to the refractory period increase.

EXTRASYSTOLIC ARRHYTHMIA

The innocent nature and extreme frequency of extrasystoles are too well known to require comment. Yet, there are a few patients who consult the cardiologist primarily because of this arrhythmia who need treatment. Schwarts reported cases of heart disease in which auricular extrasystoles were followed by fibrillation with a rapid ventricular rate and heart failure. Digitalis abolished the extrasystole and prevented fibrillation.

Digitalis in large doses will abolish the arrhythmia in a larger number of cases than the literature would indicate, and this effect is of interest to the student of digitalis and cardiac arrhythmias, especially when the rôle of digitalis in the causation of extrasystoles is so well known.

Case 3.—A young woman with a mild degree of mitral stenosis and a slightly enlarged heart complained of early palpitation and undue dyspnea on moderate exertion such as dancing, a pastime she did not wish to give up. An occasional extrasystole was noted after rest; after exercise, the radial pulse was counted at 45, but a bigeminy was noted at the heart. Eight cubic centimeters of digalen abolished all extrasystoles while at rest; after exercise, they were still, but only occasionally, noted. After 4 cc. more, extrasystoles could not be induced by exercise. The patient could then dance without palpitation or dyspnea.

Case 4.—A man, aged 54, complained of severe substernal pain on effort of three months' duration. Two days later he had a typical attack of coronary occlusion and was kept in bed for three months. Six weeks later he complained of a spell of cardiac irregularity, especially for the first few hours after arising, which made him quite miserable. He was also dyspneic on rather moderate exertion. A junctional extrasystolic arrhythmia was found. As I knew that digitalis might excite dangerous ventricular rhythms after coronary occlusion, I hesitated several days. Quinidine was not given because of the dyspnea. As the symptoms grew more annoying, it was decided to digitalize slowly, but completely. In several days the patient was free from arrhythmia, except for an occasional extrasystole, and had no dyspnea. He still takes 2 grains (0.13 Gm.) of digitalis daily and has no cardiac symptoms.

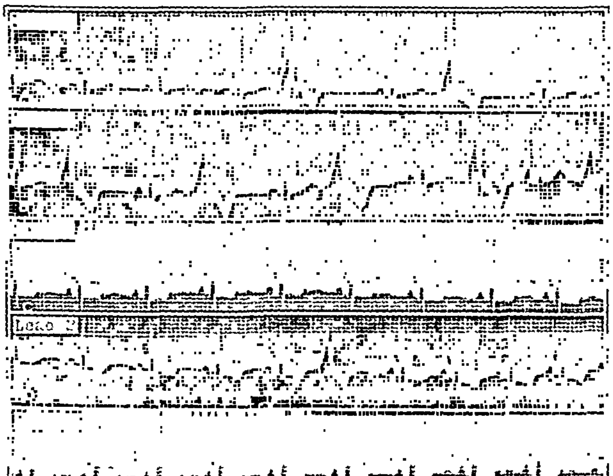


Fig. 5 (case 3).—Numerous extrasystoles, increased by exercise; abolished by full doses of digitalis. *A*, after rest. *B*, after exercise. *C*, 8 cc. of digalen given; after rest. *D*, after exercise. *E*, 12 cc. of digalen given; after exercise.

Case 5.—A young man, without a cardiac lesion, consulted me because of extrasystoles, which proved to be auricular. Permission was obtained to test the effect of digitalis and of quinidine. Each drug in full doses abolished the arrhythmia.

Case 6.—A woman, aged 60, who was first seen five years ago, complained of palpitation, a moderate degree being present at all times; several times a day there were severe spells with giddiness so marked that she had to lie down. The electrocardiogram revealed a sinus bradycardia with frequent extrasystoles. She undoubtedly had short spells of ventricular tachycardia. As these extrasystoles were not transmitted to the pulse, the rate was at times as low as from 25 to 30. Atropine and quinidine controlled the condition for a while, but as their effects were unpleasant, digitalis was given. The patient took from 3 to 5 grains (0.19 to 0.32 Gm.) a day over a period of two years, with the result that the sinus rate was increased and the extrasystoles were abolished. An occasional spell of palpitation followed gaseous distention.

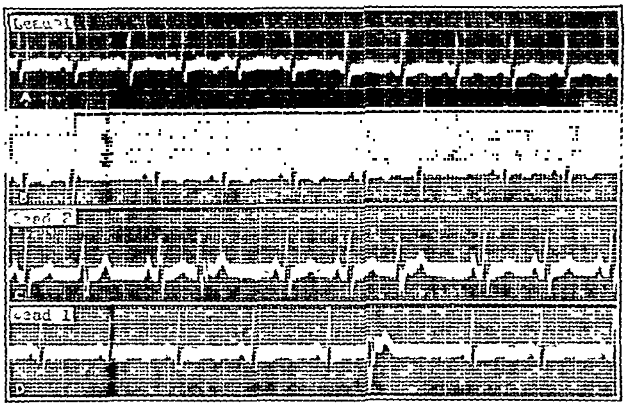


Fig. 6 (case 4).—Coronary occlusion with moderate heart failure and numerous extrasystoles; almost completely abolished by digitalis: *A*, Oct. 2, 1931, before coronary occlusion. *B*, March 1, 1932, four and one-half months after coronary occlusion. *C*, numerous extrasystoles. *D*, March 8, occasional extrasystole after digitalis by mouth.

The mechanism of this arrhythmia is probably a circus movement. The exact way in which digitalis abolishes the circus is no better understood than is its effect on paroxysmal tachycardia.

SUMMARY

In two cases of supraventricular tachycardia, digitalis was given by vein and was followed by slowing of the rate of the paroxysm and the restoration of sinus rhythm.

In one case the effect was supposed to be due to direct action of digitalis on the heart muscle. In the other case the effect was thought to be due to increased vagal tone as the heart under digitalis behaved as when the vagus was mechanically stimulated and because digitalis failed to abolish the paroxysm after the vagus was paralyzed by atropine.

In extrasystolic arrhythmia the use of digitalis is occasionally of benefit in relieving both the disturbing rhythm and the symptoms of heart failure. It will abolish extrasystoles more frequently than the literature would indicate.

Cases are reported in which all three types of extrasystoles were abolished.

Digitalis is probably effective through its action on certain factors involved in circus movement.

ABSTRACT OF DISCUSSION

Dr. Wallace M. Yater, Washington, D. C.: Dr. Barrier's paper is valuable because of the long period of time over which he was able to follow his patients very carefully. It is rather confusing, however, in view of the increasing number of reports of cases of paroxysmal tachycardia which are definitely produced by the use of digitalis. The effect of digitalis in producing or at least augmenting the appearance of ectopic beats is notorious. The known effects of digitalis, of course, are two; namely, the indirect effect on the heart due to vagus stimulation and the direct effect on the heart muscle. The predominance of the vagus effect in slowing the rate of normal stimulus production would theoretically tend to continuation of the tachycardia in cases of paroxysmal tachycardia, since there would be reduced opposition to the activity of the focus that was carrying on. On the other hand, in the case of extrasystoles, the direct effect of digitalis on the muscle, increasing its tone and irritability, would make conditions more favorable to the production of extrasystoles. It may be in such cases as Dr. Barrier reports it is the opposite effects to these which are responsible for changing the rhythms and allowing normal rhythm to be reestablished. At any rate, it is such reports as these, carefully studied and carefully followed, that indicate that more intensive work is necessary on the fundamental nature of the action of digitalis.

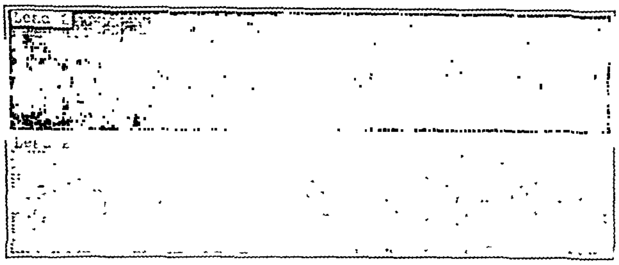


Fig. 7 (case 5).—Frequent auricular extrasystoles (bigeminy); abolished by both digitalis and quinidine.

Dr. Louis F. Bishop, Jr., New York: I should just like to call attention to one point in Dr. Barrier's paper which interested me. This was the fact that in paroxysmal tachycardia of the *supraventricular* type digitalis was effective. I should like to ask whether he has tried it in other types of tachycardia with any results. Digitalis given in small doses very often, I have found, abolishes extrasystoles. The mechanism of its action is somewhat uncertain. I think Dr. Barrier has also shown that it is often a valuable drug in abolishing certain extrasystolic arrhythmias and probably should be tried more often than it is.

Dr. W. E. Garrey, Nashville, Tenn.: I want to call attention to the fact that physicians do not always keep in mind certain definite mechanisms in connection with the production of extrasystoles and also fail to recognize certain well established physiologic facts with reference to the innervation of the ventricle and the conducting system by the vagus. The fact should be recognized that there are many and various mechanisms for the production of extrasystoles. Some of these, such as those that are effective in the production of paroxysmal tachycardia, may well be circus movements which are high up in the conducting system of the ventricle. These are readily affected by vagus action. However, the vagus does not affect the lower portion of the ventricular musculature but only the conducting system. For that reason one gets the combination of paradoxical effects by the administration of digitalis, namely, that one breaks the circus movements if one has the ectopic effects high in the conducting system, but may fail entirely and actually increase the excitability of certain foci in the ventricle through the action of digitalis on the augmentor or accelerator centers, as has been brought out so clearly in the work of Dr. J. T. Halsey. I think probably it may be well to recognize these apparent so-called reverse or paradoxical effects, depending entirely on the anatomic distribution of the vagus and augmentor nerves in the ventricle.

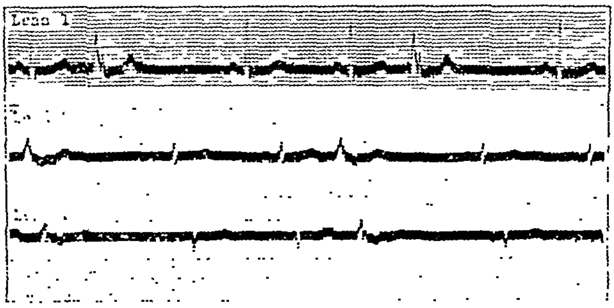


Fig. 8 (case 6).—Sinus bradycardia with frequent extrasystoles; abolished by large doses of digitalis by mouth.

Dr. Charles W. Barrier, Fort Worth, Texas: I feel like making a slight apology to the section for presenting a subject about which many cardiologists believe there is no need of drugs. They feel that these are minor cardiac arrhythmias, alarming to the patients but of little importance clinically. Dr. Bishop asked about the effect of digitalis in ventricular tachycardia. I have not used digitalis in pure ventricular tachycardias, believing that in these cases it is dangerous. In the only cases that I have seen, the patients have been relieved with quinidine or have died. I have, however, noted cases of nodal tachycardia in which the T wave followed the QRS complex that responded well to digitalis. Dr. Garrey's remarks are very important, but they do not exactly explain why these auricular tachycardias which are probably due to circus movement respond so well to digitalis, while other circus movements that are almost the same, such as flutter, do not respond to digitalis but are really aggravated by the drug.

SCLEREDEMA ADULTORUM (BUSCHKE)

NORMAN N. EPSTEIN, M.D.
SAN FRANCISCO

The recent observation of two patients who presented the clinical picture of scleredema adultorum of Buschke is the subject of this report. Although well recognized in Germany and by some French writers, this disease has received little attention elsewhere.

REVIEW OF THE LITERATURE

Buschke,[1] in 1902, was the first to distinguish scleredema adultorum as a clinical entity, and he reported a classic case in that year. He adopted the name "scleredema adultorum" because he thought it resembled sclerema of infants. Since that time, forty additional cases have been reported. Of the entire number, thirty-nine were found in the German literature and two in the French.

Buschke,[2] Hoffmann,[3] Nobl,[4] Sellei,[5] Rummert,[6] Mayr[7] and Freund[8] have made important contributions to the subject. The following table gives all of the reported cases that could be found, presented in the order of their publication. Two cases reported by Pinkus have been omitted from the table as they differ in certain important respects from scleredema adultorum. The first is an instance of diffuse scleroderma, while the second was finally diagnosed as Dercum's disease or adiposa dolorosa.

REPORT OF CASES

Case 1.—*History.*—C. C., an Italian woman, aged 31, married, first entered the University of California Hospital on May 6, 1916, at the age of 15. She complained of stiffness of the skin of the arms, neck and face.

The family history was unimportant.

From the Division of Dermatology, University of California Medical School, and the Department of Dermatology, Mount Zion Hospital.

Read before the Section on Dermatology and Syphilology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

[1] Buschke, A.: Berl. klin. Wchnschr. **39**: 955-957, 1902.

[2] Buschke, A.: (*a*) Dermat. Wchnschr. **70**: 17, 1920; (*b*) footnote 1. (*c*) Buschke, A., and Ollendorff, H.: Med. Klin. **23**: 1406-1408 (Sept. 16) 1927.

[3] Hoffmann, E.: Klin. Wchnschr. **2**: 963-965, 1923.

[4] Nobl, G.: (*a*) Wien. med. Wchnschr. **59**: 2244-2251, 1909; (*b*) Arch. f. Dermat. u. Syph. **107**: 440, 1911.

[5] Sellei, J.: Dermat. Ztschr. **54**: 161-168 (Sept.) 1928.

[6] Rummert, O.: Dermat. Wchnschr. **89**: 1563 (Oct. 26) 1929.

[7] Mayr, J.: Arch. f. Dermat. u. Syph. **160**: 149-152, 1930.

[8] Freund, H.: Arch. f. Dermat. u. Syph. **161**: 92-113, 1930.

The patient had resided in San Francisco until the age of 15 years. She had had measles in infancy. Catamenia began at the age of 13, and had always been normal.

Four weeks before entry, having been perfectly well previously, the patient began to have daily attacks of fever accompanied by chilly sensations. The fever developed about 4 p. m. each day. Two weeks before admission the fever ceased suddenly, and about this time an erythematous eruption appeared over the extensor surfaces of the forearms and knees and over the neck and face. Following the onset of the eruption the patient's skin over the forearms became firm and stiff. The sides of the neck and the face soon became involved. She complained of severe itching over these areas.

Examination.—The natural lines of the face had been obliterated, giving a masklike expression. The hair was thin, with moderate seborrhea. The reflexes and sensation were normal. The lids were swollen and stiff. The tonsils were large. The skin of the neck, shoulders, arms, forearms and face was firm and smooth. There were no changes except that where the erythematous eruption had been the skin was darker than normal. The induration disappeared over the abdomen and was present to a less extent over the thighs and legs. The hands and feet were unaffected. The skin did not pit on pressure.

Laboratory Work.—A blood count and urinalysis gave normal results. The tuberculin test gave negative results. The Wassermann reaction was negative.

Course.—The patient received thyroid extract, 0.3 Gm., three times a day. The erythematous eruption disappeared in a few days. On July 7, tonsillectomy was performed. The condition of the skin had practically cleared in five months.

The patient reentered the University of California Hospital on Jan. 6, 1929.

Interval History.—At the second entry the patient had been married for seven years. She had one child who was living and well. Her husband was living and well. She had had rheumatic fever four years and one year previously. She had not had a sore throat.

At the time of admission she complained of stiffness of the skin of the whole body.

The patient was quite well until two weeks before admission, when she was taken down with the "flu" (pains and aches in the back, fever and chills). She was confined to bed four days and then, as she felt perfectly well, was allowed to be up and around. Five days later reddish annular blotches appeared on the flexor surface of the forearms and arms. These disappeared one day later. Following this the patient noticed an increasing stiffness and tightness of the skin, particularly on the upper extremities, face and neck.

Examination.—The observations were the same as on the previous entry, except for the heart, which showed a presystolic and a systolic murmur all over the precordium. The tonsils had been removed.

The patient's skin showed a more extensive involvement than on the previous entry. The expression was masklike. The mouth could be opened only with difficulty. The skin of the neck, shoulders, back, face, chest and abdomen was hard and stiff and could not be picked up in folds. The induration was present over the thighs and legs, but to a lesser degree. This change in induration was not sharp, but shaded off imperceptibly. The hands were somewhat stiffened, but the fingers and feet were unaffected. No abnormal pigmentation was present.

Laboratory Work.—Examination of the blood showed: hemoglobin, 78 per cent; red cells, 4,684,000; white cells, 10,360, with a normal differential count. The urine was normal. The Wassermann reaction was negative. Examination of the stool gave negative results. The basal metabolic rate was 18.6 per cent plus. The visual field was normal. A dextrose tolerance test showed: fasting blood sugar, 0.83 mg.; first specimen, 0.134 mg.; second specimen, 0.146 mg.; third specimen, 0.116 mg.

A biopsy specimen was taken from the right forearm. The urine was negative for arsenic.

Course.—The patient has been under observation in the outpatient department up to the present time. The induration of the skin gradually subsided; the masklike expression slowly changed to normal, and the patient regained the ability to open her mouth to its full extent. Except for a slight residual stiffness over the shoulders, the skin is now entirely normal. No atrophy is present.

CASE 2.—*History.*—R. B., a man, aged 43, a printer, was admitted to Mount Zion Hospital on Sept. 23, 1929, with the complaint that the skin felt tight over the neck, face, chest, back and abdomen.

The family history was unessential.

The patient had measles and smallpox in childhood. He had not had rheumatic fever. He had pneumonia in 1910. The patient said that he had not had a venereal disease. He had fractured his ankle and two ribs in 1913, with an uneventful recovery. No operation had been performed.

The patient's wife had had one miscarriage; one child had died during delivery.

Six weeks prior to admission the patient had had a tooth pulled. His jaw was swollen and painful for a week, and chips of bone discharged from the wound. The tonsils became swollen and reddened; pus drained from the left. Ten days before admission the patient began to have a sensation of tightness over his neck, which progressed over the back, chest and face.

At the age of 16 the patient had first noticed a stiffness of the skin of the back, which extended around in front of the neck. He could not remember any definite preceding febrile episode, but had had several attacks of grip about that time. The skin remained quite rigid for a few months, and then subsided.

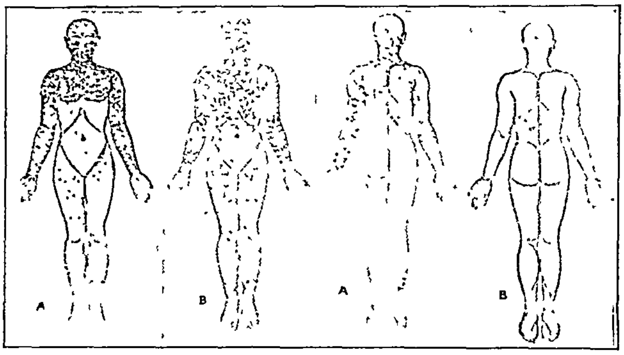


Fig. 1.—Diagram showing distribution of induration. *A*, case 1. *B*, case 2.

Examination.—This showed a tightness of the skin of the face, neck, chest and back. The skin was less firm over the buttocks and lower limbs.

The teeth were carious. The tonsils were greatly hypertrophied and reddened; there was a discharge of pus from the left tonsil. There was no adenopathy. The chest, heart and abdomen were normal except for the skin.

Laboratory Work.—On September 19, examination of the blood showed: hemoglobin, 96 per cent; red cells, 5,040,000; white cells, 6,400; polymorphonuclears, 52 per cent; lymphocytes, 45 per cent, and transitionals, 3 per cent. The Wassermann reaction was negative. The coagulation time was four minutes; the bleeding time, two minutes. The urine was normal. A biopsy specimen was taken from the right shoulder. The urine was negative for lead and arsenic. A phenolsulphonphthalein test showed: 45 per cent, first specimen; 22 per cent, second specimen; total, 67 per cent. The basal metabolic rate was 3 per cent plus.

X-ray pictures of the hands were negative for circulatory disturbances.

Course.—While the patient was in the hospital a tonsillectomy was performed. He was discharged on October 10. He has been observed in the outpatient department at frequent intervals. The rigidity of the skin slowly subsided, so that when last seen only a slight amount of residual induration remained over the wall of the chest. The patient complained of a tightness about the anus, and his lips were stiff at times. The skin at no time pitted on pressure There was no resultant atrophy or increased pigmentation Although not entirely well, the patient is greatly improved

CLINICAL MANIFESTATIONS

Scleredema adultorum is characterized by progressive induration and swelling of the deeper portions of the skin and subcutaneous tissues As a result, the skin becomes hard and rigid and cannot be lifted up into folds The normal markings are obliterated, giving a smooth, shiny appearance On palpation the skin is of boardlike consistency and does not pit on pressure. Except for this, there are no other changes in the epidermis Sensation is unchanged, sweating may be normal or slightly decreased, there is no loss of hair, there are no changes in pigmentation, and there are no signs of inflammation When the process subsides, the skin returns completely to normal Atrophy is never seen.

The induration usually begins at the nape of the neck and spreads quite rapidly to the front of the neck and the face It then progresses downward over the back and chest, becoming almost imperceptibly less marked over the lower portions of the trunk The pelvic girdle and lower extremities are less often affected and to a lesser degree than the shoulders, neck and face The hands and feet are never involved, although induration of the hypothenar eminences sometimes occurs A transient erythematous eruption occasionally precedes the development of the induration

Reported Cases of Scleredema Adultorum

Case	Author	Date of Report	Sex	Age	History of Preceding Infection	Distribution and Clinical Course	Pathologic Condition	Treatment
1	Buschke [1]	1902	M	44 yrs	Influenza, erythematous eruption	Face, neck, thorax, gluteal region, lower limbs, 1 year later the cheeks remained indurated		Massage, iodides, salicylic acid
2	Baginsky, A Berl klin Wchnschr, 1903, no 19, Berl med Gesellsch **23**: 3, 1903	1903		5¾ yrs	General malaise	Neck, thorax, arms, tongue, improved gradually		Thyroid extract without results; baths, massage, heat
3	Halle Arch f Dermat u Syph **91**: 362 1908	1908	M	45 yrs	Influenza	Neck, arms, trunk		Massage, baths, a fibrin ferment
4	Rissom [1b]	1909	M	45 yrs	Influenza pyodermia of nipples and neck	Face, neck trunk, extremities, was still present after 2 years		Baths, massage, ointments, injections of a fibrin ferment
5	Nobl [4a]	1909	F	52 yrs	Bronchial catarrh	Face, neck, trunk improved greatly in 7 months		
6	Nobl [4b]	1911	F	20 yrs	Influenza 8 weeks later	Face, neck, trunk, arms, receded in 2 years		Baths, massage, salicylic acid, thiosinamine
7	Nobl [4c]	1911	F	6 yrs	Epidemic parotitis	Face, neck, trunk, severe anemia cleared in 8 months	Vessels of cutis dilated surrounded by numerous mast cells	
8	Nobl [4d]	1911	F	24 yrs	Influenza	Face, neck, thorax, upper extremities, hands not affected subsided after 10 months		A fibrin ferment subcutaneously
9	Nobl [4b]	1911	F	30 yrs	Influenza	Neck, trunk, arms		
10	Bamberger [1c]	1911		(a) 20 yrs	Influenza 2 days later	Face, thorax, breasts		Salicylic acid salve, massage, a fibrin ferment
				(b) 26 yrs	Influenza, recurrence	Face, thorax, neck, extremities, back, cleared in 2 years		A fibrin ferment and quartz lamp
11	Roscher Arch f Dermat u Syph **113**: 875, 1912	1912	M	22 yrs	Fever, herpes, nasal	Face, trunk, neck, arms	Wide spaces in connective tissue of cutis partially filled with transparent, poorly stained masses	Turkish baths, massage, a fibrin ferment
12	Wossenkressenski Dermat Wchnschr **68**: 173, 1919	1919	M	22 yrs		Entire skin		
13	Buschke [2a]	1920		Child ? age	Scarlet fever 14 days after	Neck, cheeks		
14	Buschke [2a]	1920	F	30 yrs	Influenza 14 days after onset	Started with stiffness of neck, which extended to face, arms, thorax and back		
15	Finkelstein, H Lehrbuch der Sauglingskrankheiten, Berlin, H Kornfeld, p 770	1921	F	14 days	Influenza 7 days later	Feet, lower extremities and genital and gluteal regions, no change in 3 weeks		
16	Kutter [10]	1922		8 wks	Encephalitis	Anal and gluteal regions, between scapulae, cleared in 8 days		
17	Hoffmann [3]	1923	F	20 yrs	Influenza	Face, neck, trunk arms, tongue, improved	Connective tissue of cutis and subcutis swollen few inflammatory infiltrations, thickened vessels in subcutis, swelling of cutaneous nerves	Heat, massage, salicylic acid, rest in bed
18	Bruhns Zentralbl f Haut u Geschlechtskr **13**: 173 1924	1924	F	18 yrs	Mild febrile reaction	Face, neck, trunk, arms, tongue, after 1 year induration was limited to shoulders		Heat, injections of a fibrin ferment
19	Hoffmann, E Zentralbl f Haut u Geschlechtskr **9**: 195, 1924	1924	F	7 yrs	Influenza	Entire skin with exception of hands and feet eyelids and tongue affected, erythema		
20	Grunmandel Zentralbl f Haut u Geschlechtskr **17**: 270, 1925	1925		4 yrs	Scarlet fever, nephritis	Face, neck, thorax, back		
21	Wiener Zentralbl f Haut u Geschlechtskr **17**: 269, 1925	1925	F	36 yrs	Pernicious anemia	Entire skin except feet and arms		
22	Adler [11]	1926	M	58 yrs	Scarlet fever at age of 26 and 3 mos later	Face, trunk, arms, *cleared* entirely		*Russian baths*
					Recurrence at age of 35	Cleared to upper lids, which still showed some hardening		

Reported Cases of Scleredema Adultorum—Continued

Case	Author	Date of Report	Sex	Age	History of Preceding Infection	Distribution and Clinical Course	Pathologic Condition	Treatment
23	Schmiedt, K.: Zentralbl. f Haut- u. Geschlechtskr. **18**: 26, 1926	1926	F	47 yrs	Influenza	Face, upper part of trunk, arms, gluteal region, thighs; cleared	.. . .	Heat, massage with 1 per cent salicylic ointment
24	Hoffmann, F · Dermat Wchnschr **84**: 846, 1927	1927	F	47 yrs.	Influenza 2½ months later	Face, neck, thorax, arms, sides of trunk; cleared in 1½ years with some residual	Edema of connective tissue fibers in subcutis; round cell infiltration around blood vessels	Massage, salicylic acid ointment, cotton packs
25	Naegele [14]	1927	F	14 yrs	Pyoderma of arms	Face, arms		
26	Hoffmann [9]	1927	M	62 yrs	.	Entire skin, accentuated follicles on both arms, brownish red infiltrations; present for 15 years with little change		
27	Buschke and Ollendorff [2c]	1927	F	46 yrs	Influenza with enlargement of thyroid	Extremities, neck, trunk; decrease in perspiration; cleared in 6 months	Amorphous substance between muscle bundles	Thyroid extract iodides, massage, electric baths
28	Beck: Zentralbl. f Haut- u. Geschlechtskr **27**: 751, 1928	1928	.	9 yrs	Influenza 2 years before	Thighs	.	Twelve injections of a mixture of turpentine oils
29	von Graevenitz [13]	1928	M	4 yrs.	Impetigo contagiosa 8 days later	Face, neck, trunk, extremities, abdomen; pharyngitis, fever, albuminuria; cleared in from 2 to 3 months	.	Thyroid extract
30	von Graevenitz [13]	1928	F	5 yrs	*Impetigo contagiosa, left arm 1 day later*	*Neck and shoulders, otitis* media; cleared in from 2 to 3 months	.	Thyroid extract
31	von Graevenitz [13]. .	1928	M	6 mos.	Encephalitis	Entire skin		
32	Karrenberg, C L: Zentralbl f. Haut- u. Geschlechtskr. **27**: 341, 1928	1928	F	35 yrs	General weakness	Hands, face, back; improved		
33	Sellei [5]	1928	F	*10 yrs*	*Influenza*	*Left thigh*	*Normal epidermis*	Heat, quartz light, injections of turpentine
34	Rummert [6]	1929	F	13 yrs	Tonsillitis; pharyngitis	Neck, trunk, arms	Blood vessels dilated; perivascular cellular infiltration	Baths; a preparation containing solution of pituitary
35	Leané, E; Dryfus See, G, and Launay, C. Bull Soc de pédiat de Paris **27**: 518, 1929	1929	M	4½ yrs.	Tonsillitis; hemorrhagic nephritis	Back, face, thorax, thighs, arms involved; forearms, hands, feet and scrotum free; improved in 3 months and cleared gradually	.	Thyroid
36	Audry and Gradat [16]	1930	M	68 yrs	Rheumatic pains in lower limbs	Legs and thighs; a local inflammation present over legs; cleared in a few months	..	Potassium iodide, arsenic
37	Seifert, A: Arch f Kinderh **91**: 220, 1930	1930	M	6 yrs.	No preceding infection	Back, shoulders, abdomen and arms; receded in 5 weeks; (?) pituitary deficiency	.	Massage
38	Mayr [7] .	1930	M	44 yrs	Influenza	Neck, chest, back, abdomen, arms; improved in 5 months	Blood vessels normal; no mucous substance found between collagen bundles	Massage, baths, salicylic acid ointment
39	Mayr [7]	1930	F	26 yrs	Not stated	Neck, back, front of trunk and arms; incomplete cure *in 7 years; persistent thymus*		
40	Freund [8]	1930	F	57 yrs	Influenza	Face, neck, shoulders, arms, forearms, faded toward pelvic region; lower extremities, hands and wrists free	Three biopsy specimens taken about the same time; perivascular infiltration, mainly fibroblasts and round cells; vascular walls and nerves normal; edematous collagen fibers	Pituitary and thyroid extract, without avail
41	Freund [8]	1930	F	28 yrs	Mastitis and pharyngitis articular rheumatism 5 weeks after a normal delivery	Entire body except hands, feet, ankles and abdomen	Similar to preceding case	

The rigidity of the skin of the face and eyelids produces a masklike appearance. The patient frequently has difficulty in opening his mouth, and movement of the neck is restricted. The limbs may be flexed and extended with difficulty. Occasionally, owing to the rigidity of the wall of the chest, respiration may be interfered with, but never to a grave extent. In one of our cases the patient complained of this particularly after a full meal.

The disease is usually ushered in with symptoms of fever and malaise and follows some acute infection. Within a few days the induration develops as described, and the constitutional symptoms subside. The process recedes in from a few days to several years. In one of Hoffmann's cases,[9] the rigidity persisted for fifteen years, while in Kutter's case[10] it disappeared within eight days. The condition usually clears within the first year. There are no sequelae. In children the distribution of the process is usually more widespread, and the progress is more rapid than in adults.

Adler[11] and Bamberger[12] each reported recurrences of the disease. In both of my cases recurrences occurred. Laboratory investigation reveals nothing of significance.

ETIOLOGY

The etiology of scleredema adultorum is obscure. The frequency with which the induration follows some acute infection points strongly to a definite relationship. The infection usually precedes the onset of the scleredema by from a few days to a few weeks. In eighteen cases influenza preceded the condition. Three were ushered in with acute tonsillitis; three followed scarlet fever and two encephalitis; epidemic parotitis occurred in one and bronchial catarrh in one, while in five other cases symptoms of fever, malaise and weakness were reported. Seifert stated that a history of a preceding infection was not present in his case. In the two cases reported here the condition followed influenza in the first and tonsillitis in the second.

---

[9] Hoffmann, E: Arch f Dermat u Syph **155**: 319, 1927.

[10] Kutter Zentralbl f. Haut u Geschlechtskr **11**: 317, 1922

[11] Adler Zentralbl f Haut- u Geschlechtskr. **20**: 259, 1926

[12] Bamberger. Arch f. Dermat. u Syph **108**: 313, 1911.

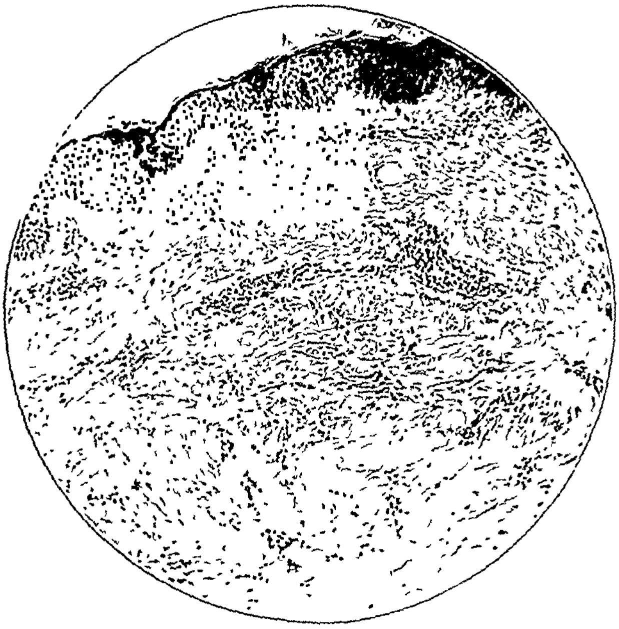


Fig. 2 (case 1).—Section under low power.

It is interesting to note that in two cases reported by von Graevenitz[13] impetigo contagiosa preceded the scleredema, and in the patient whose case was reported by Naegele[14] a pyodermia was present over the arms. In Rissom's case[15] there was a pyodermia of both nipples, and in the report of Audry and Gadrat[16] a dermatitis was present over the lower portion of the affected extremities. In this group of cases the induration usually began close to the site of the cutaneous infection.

The exact rôle that these acute infections play in the production of scleredema adultorum is not entirely clear. The fact that the induration frequently begins near the main source of the infection and progresses in a definite set manner in each case substantiates the theory of some writers that the condition is produced by a lymph block and is a type of elephantiasis. This is illustrated by the numerous instances in which there is an infection of the throat and the process begins in the neck. The cases which followed cutaneous infections also suggest this possibility.

No definite relationship could be found between disturbances of the endocrine glands and sclerema. In several instances in which thyroid and pituitary extracts were used for therapy no apparent benefit was obtained.

In thirty-five cases in which the sex was stated, twenty-two were female and thirteen male patients. The ages varied from 8 days to 68 years. The largest number of patients, namely, thirteen, were under the age of 10 years. Four were between the ages of 10 and 20 years, eleven between 20 and 40, nine between 40 and 60 and three between 60 and 70.

PATHOLOGY

The histopathology of scleredema adultorum, as reported by various workers, does not appear to be the same in all cases, but may vary at different stages of the disease. Freund[8] described the microscopic changes in detail.

The epidermis is little changed except for an occasional prolongation and widening of the rete pegs. In the corium there is a perivascular infiltration consisting mainly of connective tissue cells of the fibroblastic series and a few lymphocytes and plasma cells. The walls of the blood vessels have been reported thicker than normal in some cases, but for the most part have been found normal. There is no endarteritis. The nerves, sweat glands and hair follicles are unchanged. The elastic tissue is normal.

The most prominent feature is an enlargement of the collagen bundles to several times their normal size. This produces a thick layer in the deeper portion of the corium and throughout the subcutaneous tissue. The collagen bundles are edematous, and there are few connective tissue cells among them.

Histologically, most workers found spaces around the blood vessels and the epithelial appendages. In some areas these were filled with a well stained, transparent material. The nature of this substance is unknown, but it has been shown not to be mucin. Freund[8] expressed the belief that this material is produced either by the degeneration of connective tissue or by fibroblastic activity. In some respects it resembles the material found in myxedema.

Biopsies were done in both of the cases reported here and presented the following findings:

Case 1.—A biopsy specimen was taken from the right forearm two weeks after the onset of the disease.

The epidermis appeared normal. Just below the epidermis was a narrow strip of connective tissue which was relatively acellular and was composed of fine fibrils containing a few nuclei of fibroblasts. There was a perivascular infiltrate, which was also present about the sweat glands deep into the section. This infiltrate was composed mainly of fibroblasts with a few round cells. The blood vessels were normal.

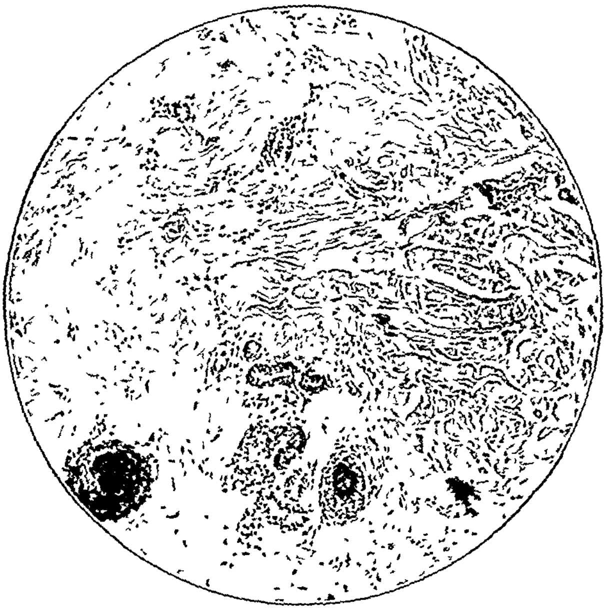


Fig. 3 (case 1).—Section deep in corium, under high power.

Swollen bundles of collagen tissue occupied the lower portion of the corium and subcutaneous tissue. The collagen tissue was markedly edematous and separated by vacant spaces which could also be seen about the sweat glands. In places the spaces contained a transparent, faintly staining material.

---

[13] von Graevenitz: Monatschr. f. Kinderh. **39**: 257-263, 1928.

[14] Naegele: Zentralbl. f. Haut- u. Geschlechtskr. **23**: 638, 1927.

[15] Rissom: Arch. f. Dermat. u. Syph. **94**: 39-48, 1909.

[16] Audry, C., and Gadrat, J.: Ann. de dermat. et syph. **1**: 161-167 (Feb.) 1930.

The elastic tissue was normal.

Case 2.—A biopsy specimen was taken from the back of the right shoulder three weeks after onset.

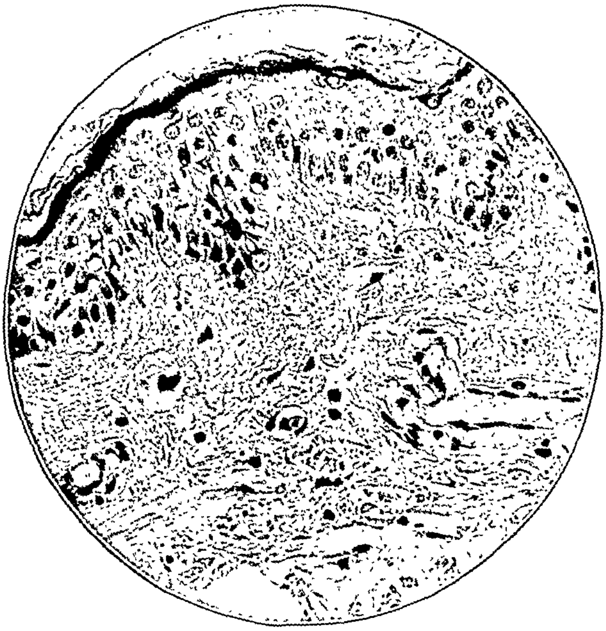


Fig. 4 (case 2).—Section of epidermis and upper corium, under high power.

The epidermis was normal. Beneath the epidermis could be seen a definite narrow band of connective tissue made up of fine fibrils and containing a few fibroblasts. This tissue was probably young connective tissue. A slight perivascular infiltrate composed of a few fibroblasts and a few round cells extended down with the blood vessels, sweat glands and hair follicles deep into the corium. This infiltrate was considerably less pronounced in this case than in case 1. The blood vessels were normal.

The deeper portion of the corium and the subcutaneous tissues were thickened to several times the normal and were occupied by greatly swollen collagen bundles. These bundles were separated and broken up by spaces which in many places contained a faintly staining, transparent material. This entire area was quite acellular, containing a few nuclei of fibroblasts.

DIFFERENTIAL DIAGNOSIS

Scleredema adultorum is to be distinguished from diffuse scleroderma, to which it bears a striking resemblance. Undoubtedly many cases of scleredema have been classified and reported in the literature as diffuse scleroderma. The essential differential points between scleredema and scleroderma may be summarized as follows:

1. In scleredema the epidermis is not affected, the process being in the deeper portions of the skin and subcutaneous tissue and occasionally the fascia and muscles, while in scleroderma the superficial skin layers are frequently involved.
2. Scleredema follows some acute infection, while scleroderma has no constant relation to infections.
3. Scleredema always involutes spontaneously without subsequent atrophy of the affected tissues, while scleroderma may end fatally and frequently results in atrophy of the affected parts.
4. The hands and feet are never affected in scleredema, while in scleroderma they are frequently involved, with the production of sclerodactylia. In scleroderma a syndrome simulating Raynaud's disease is often seen.
5. Pigmentary changes are absent in scleredema and frequently present in scleroderma.
6. Histologically, scleredema differs from scleroderma in that an inflammatory reaction is never a prominent feature, endarteritis is not seen, and atrophy never occurs.
7. Calcification of the skin or subcutaneous tissues, occasionally reported in scleroderma, never occurs in scleredema.

Myxedema, trichinosis, adiposis dolorosa, dermatomyositis and edemas of cardiorenal origin are readily distinguished from scleredema.

The possibility that sclerema is a form of elephantiasis must be kept in mind.

TREATMENT

Scleredema adultorum is a self-limited disease, the process involuting spontaneously within varying lengths of time.

Endocrine gland therapy has not been beneficial. Massage and hot baths are useful. The use of a 1 or 2 per cent salicylic acid ointment is recommended. Injections of a fibrin ferment have been used.

COMMENT

The two cases reported here are typical examples of scleredema adultorum. The onset of the condition in each patient after an acute infection, the gradual disappearance of the induration without atrophy of the skin or other sequelae and the histologic changes are characteristic of the disease.

A striking similarity in the clinical picture of these two patients was noted. The distribution of the induration was practically identical in the two. Each patient suffered from a recurrence of the condition. The first attack occurred at the age of 15 years in case 1 and at 16 years in case 2. The second attack occurred at the age of 31 in case 1 and at 43 in case 2. In both patients the second attack was more severe than the first, being more extensive and slower in receding. An associated

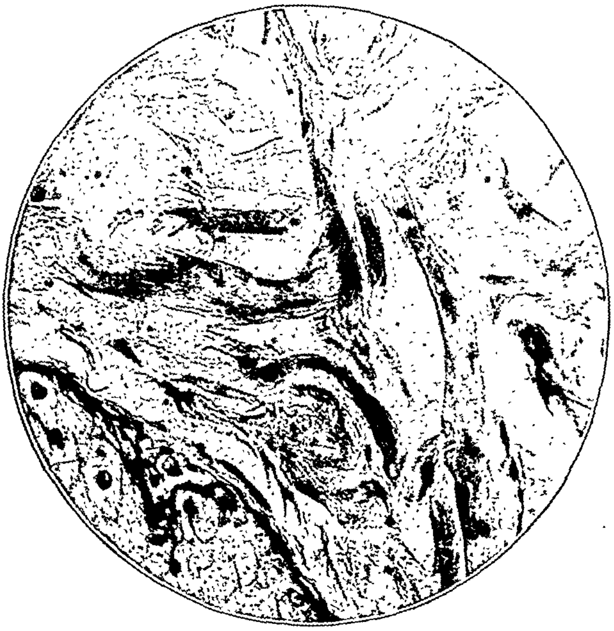


Fig. 5 (case 2).—Oil immersion view, deep in corium, showing edematous collagen and spaces.

tonsillitis was found in each case, eventually necessitating tonsillectomy. The use of thyroid gland therapy was of no benefit. In case 1 the induration was preceded by a transitory erythematous eruption in both attacks.

Scleredema adultorum is a distinct entity that has a definite clinical course and a characteristic histopathology. It is probably not as uncommon as the literature would indicate. Many cases are undoubtedly reported and classified as diffuse scleroderma.

The differentiation of this disease from scleroderma is quite important from the standpoint of prognosis and treatment.

450 Sutter Street.

ABSTRACT OF DISCUSSION

Dr. Harold N. Cole, Cleveland: I think Dr. Epstein's contribution is the first there has been in the American literature, and it is timely. If one looks in American textbooks today one will find no mention of scleredema adultorum. The term sclerema adultorum is also used for scleredema. Perhaps it is unfortunate to have such a close resemblance in the two names, but such is the case. There is no question that scleredema adultorum is a distinct entity, though I do believe that it may be due to a variety of causes. I agree with Dr. Epstein that there are a considerable number of these cases and that in the past proper diagnoses have not been made. I recall one typical case of this seen in a child, aged 10 or 12 years. The child had but recently recovered from scarlet fever. The picture was the exact counterpart of the disease described by Dr. Epstein. I think that probably the pediatricians see more of these cases than the dermatologists but that if we watch for them in the future, we shall find that the disease is not so rare.

Dr. Fred D. Weidman, Philadelphia: I think that when more is finally known about the chemistry of the substance that is responsible for the horny condition of this skin it will be found not to be a constant thing. I think that in some cases it will turn out to be a mucoid material and have some relation to thyroid disease, as in localized cases of myxedema. I have found that in some cases the material was more amyloid in its microchemical reactions. In these cases one should examine for the internal changes which may lead on the one hand to mucoid changes and on the other hand for such things as malaria, chronic suppuration, and all the other conditions that may lead up to amyloid disease. I think it is a clinical entity, but just as zoster has many different causes, so does this, and the type of the disease depends on the microchemical composition of the substance that is responsible for the cutaneous condition.

Dr. George M. MacKee, New York: There is a type of sclerema occurring in children that is called sclerema neonatorum. This follows one of the acute exanthems. It undergoes a rapid course and ends in complete recovery. That condition is quite different from the other type, which leads to death. I should like to ask Dr. Epstein whether the adult scleredema is not identical with or similar to this particular type of sclerema neonatorum.

Dr. Norman N. Epstein, San Francisco: Buschke emphasized the similarity between scleredema adultorum and the sclerema neonatorum. He gave the disease this name because of the resemblance. The name perhaps is not the best, because most of the cases fall in the age group below 10 years.

Treatment of Placenta Praevia.—Each individual case must be carefully considered. Just as illegitimate as the fundamental condemnation of cesarean section is to be considered nowadays, just as regrettable and exaggerated does the attitude seem to me that is taken up by some accoucheurs who, in point of principle, will use cesarean section in all cases of placenta praevia. I may once again draw attention to the fact that out of my 240 patients not less than 95 were delivered spontaneously or after puncture of the membranes, with one fatal case only. Would anybody insist that these mothers should have been subjected to cesarean section?—Essen-Moller, Elis: *J. Obst. & Gynaec. Brit. Emp.* **39**:231 (summer) 1932.

FORCED SPINAL DRAINAGE IN ITS RELATION TO INFECTIONS OF THE CENTRAL NERVOUS SYSTEM

GEORGE M. RETAN, M.D.
SYRACUSE, N. Y.

In 1919, Weed and McKibbon[1] demonstrated that the intravenious injection of a hypotonic solution increased the intracranial pressure. In 1923 and 1924, Weed[2] found that the intravenous injection of a hypotonic solution in animals caused a hydrosis of the central nervous system. The essential changes were a hydrosis of the cells in the choroid plexus, a collection of fluid in the perineural spaces, a dilatation of the perivascular channels that lead into the subarachnoid space and an increased intracranial pressure.

In 1928, Kubie[3] demonstrated that if a hypotonic solution is injected into the blood stream of animals there is a marked increase in intracranial pressure and a striking hydration of the central nervous system. If, however, a needle is introduced into the subarachnoid space and the increased fluid is allowed to drain, there is no rise in intracranial pressure and no hydrosis of the central nervous system results. He concluded:

> It is evident that lowering the osmotic pressure of the blood with a hypotonic solution causes a transudation of fluid from the capillaries in the perivascular and perineural areas throughout the whole central nervous system; and that by similarly draining the cerebrospinal fluid a free escape of this transudate is accomplished from the depths of the tissue to the surface through the pathway of the least resistance.
>
> In this way a washing out of the perivascular exudates into the subarachnoid space was achieved in meningo-encephalitis in cats.

In support of Kubie's findings, I have performed four autopsies in cases of septic meningitis in which forced spinal drainage was done, and no hydrosis of the central nervous system was found, either in the gross or microscopic sections.

Kubie further suggested the possible use of this method of treatment in human beings.

The change in osmotic pressure produced by the intravenous injection of a hypotonic solution is a powerful physiochemical force. Loeb and Roth,[4] indeed, stated that the osmotic pressure even of physiologic solution of sodium chloride is about 4.9 atmospheres.

The action of such a solution is shown in the diagram. The capillaries are represented by *C*. There is a flow of fluid from the blood stream through the capillary wall into the intercellular spaces (*I*). The fluid flows through the intercellular spaces to the perivascular space (*P*), thence to the subarachnoid space (*S*) and the lumbar needle. In this manner one is able to lave nerve cells in the depths of the tissue of the central nervous system.

There is a further fact of the greatest importance. Wherecever inflammation exists there is an increased collection of fluid in the pericellular lymph spaces. This constitutes the phenomenon of edema. Although

---

From the Department of Pediatrics, College of Medicine, Syracuse University and the Syracuse Memorial Hospital.

Read before the Section on Pediatrics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

[1] Weed, L. H., and McKibbon, P. S.: Am. J. Physiol. **48**:512 and 531 (May) 1919.

[2] Weed, L. H.: Am. J. Anat. **32**:253 (Sept.) 1923-1924.

[3] Kubie, L. S.: Brain **51**:244 (June) 1928.

[4] Loeb and Roth: Arch. f. d. ges. Physiol. **71**:457, 1898.

the mechanism of edema resulting from inflammation is not thoroughly understood, it is known that there is an increased permeability of the capillary walls. Since the capillaries in the inflamed area are more permeable to interchange of fluid, the decreased osmotic pressure of the blood stream is exerted principally at the point of least resistance, which is the inflamed area. This is illustrated in the following cases:

Case 14.—An infant, aged 9 months, had tuberculous meningitis and acute colitis. The colitis resulted from catharsis. During the intravenous injection of 2 liters of hypotonic solution, a quantity of fluid was eliminated every fifteen or twenty minutes from the colon.

Case 15.—This is a case of clinical tuberculous meningitis. The patient, a child of 3 years, developed some type of urinary infection with frequent and burning urination and pus in the urine. Eighteen hundred cubic centimeters of a solution of 0.45 per cent sodium chloride was injected into the vein. There resulted a prompt diuresis of from 60 to 80 cc. each ten minutes, with no increase in the flow from the spinal needle. One-half cubic centimeter of solution of pituitary was injected into the muscle followed by a marked decrease in urinary output and an increased flow of spinal fluid.

Case 18.—This is a case of influenzal meningitis with bronchitis. When the hypotonic solution was injected, bubbling râles were produced throughout the chest.

In infections of the central nervous system, having as a basic pathologic process a perivascular round cell infiltration, one invariably finds an increased number of round cells in the spinal fluid following the introduction of a hypotonic solution into the blood stream. Kubie[3] found this increase in animals in which meningitis was experimentally produced. The same phenomenon was observed in both of my cases of poliomyelitis, in one of acute encephalitis (in the other case the fluid was bloody), in two of chorea, in three of tabes and in one case of chronic encephalitis of the parkinsonian type of four years' duration (tables 1, 2, 3, 4, 5, 6 and 7).

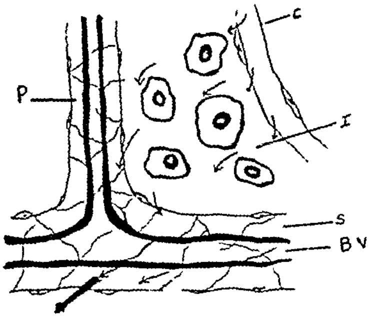


Diagram showing fluid pathways in the central nervous system during forced spinal drainage.

In tabes I have found that after the introduction of a hypotonic solution into the blood stream, the globulin content of the spinal fluid increases from about 15 to as high as 98 mg. per hundred cubic centimeters.

These various facts lead to the following conclusions: When the osmotic pressure of the blood is lowered, the resultant force is exerted selectively on the inflammatory areas. Products of inflammation are washed from the depths of the affected areas to the surface.

Forced spinal drainage relieves the edema which is a part of the pathologic process in these various infections. In cases of poliomyelitis the tremor disappears. In tabes I invariably find changes in nerve reactions immediately following the treatment. One tabetic patient regained the sphincter control of his bladder after having been incontinent for four years; changes in the reflexes and in sensory disturbances are found. These changes are immediate and can be explained only on the basis of a lessened edema.

For purposes of discussion I shall separate the infections of the central nervous system into two groups. In the first group I include those infections the basic pathologic process of which is a perivascular round cell infiltration. These diseases are Sydenham's chorea, acute and chronic epidemic encephalitis, preparalytic poliomyelitis, syphilis of the central nervous system and tuberculous meningitis. These various infections exhibit individual differences in their pathologic process but in a general way are similar. They first affect an inflammatory reaction of the meninges with a subsequent invasion of the deeper tissues of the central nervous system. Hemorrhage, edema and necrosis play their rôle in most of these diseases. Perivascular infiltration, edema and hemorrhage are, of course, of vascular origin, and necrosis is due to the action of the various toxins on tissue and may also be caused by circulatory disturbances from the edema. Forced spinal drainage is most effective in this group of diseases, to which this paper will be limited.

Table 1.—*Results of Forced Drainage in a Case of Poliomyelitis* *

Time	Amount, Cc.	Cell Count	Polymorphonuclears, per Cent	Mononuclears, per Cent	Fluids
1:45 p. m.	7	739	90+	..	Spinal puncture
2:20 p. m.	..	...	....	.	Drainage started
2:50 p. m.	45	264	90+	..	400 cc. of water
3:20 p. m.	31	136	90+	..	400 cc. of water; 20 cc. of serum muscle
6:20 p. m.	11	98	90+	..	Fluids refused; nausea: 6:00; vomited; 9:15, 200 cc. of orange juice
10:00 p. m.	15	47	90+	..	Vomited 200 cc.
12:15 a. m.	2	38	90+	..	1 drop 6 minutes
			Forced Drainage Begun		
1:30 a. m.	32	174	20	80	1,030 cc. of 0.45 NaCl; 30 cc. of serum 11 to 16 drops per minute
3:00 a. m.	42	134	8	92	480 cc.
6:30 a. m.	75	147	4	96	390 cc.; 7:30 vomited
9:30 a. m.	50	155	35	65	280 cc.; 9:10 vomited; severe headache
12:30 p. m.	30	56	23	77	420 cc.; 10:00 vomited; wire in
4:30 p. m.	20	54	26	74	310 cc.; 1:30 severe pain in right leg
5:30 p. m.	10	85	28	72	180 cc.; severe headache; wire out
6:05 p. m.	65	121	29	71	Needle removed
	429				

* In this and tables 2, 3, 4, 5, 6 and 7, the washing of round cells from the perivascular round cell infiltration by the intravenous injection of a hypotonic solution is shown.

Table 2.—*Results of Forced Drainage in a Case of Poliomyelitis*

8/11/31 Time	Amount, Cc.	Cell Count	Polymorphonuclears, per Cent	Mononuclears, per Cent	Fluids
2- 3	8	70	31	69	700 cc. water by mouth; 500 cc. milk by mouth
3- 4	9	21	..	..	
4- 5	6	13	..	..	
6- 7	9	13	..	..	
7- 8	9	24	42	58	
			Forced Drainage Begun		
8- 9	60	818	1	99	1,000 cc. of 0.45% NaCl intravenously
9-10	20	332	2	98	
10-11	18	316	1	99	
11-12	14	39	2	98	
12- 1	12	14	1	99	
1- 2	1	22	1	98	
2- 3	1	..	..	..	Total fluids from 7 p. m. to 8 a. m.: 340 cc. of water and 250 cc. milk
	167				

SYDENHAM'S CHOREA

The few cases of acute chorea that have been examined at autopsy show small localized areas of perivascular round cell infiltration. The infection is not a

The rigidity of the neck subsided gradually but was not entirely gone until December 14. The patient made a gradual convalescence and was discharged from the hospital January 6, fully recovered.

I am presenting this case as a proof of the safety of forced spinal drainage. This child received eighteen days and nights of treatment without developing symptoms attributable to the drainage except for an intermittent headache and an occasional vomiting, both of which were easily controlled. The only reasonable clinical diagnosis was tuberculous meningitis, but bacterial confirmation was lacking.

TABLE 9.—*Results in Cases in Which Forced Spinal Drainage was Used* *

		Disease	Age	Duration from Onset	Number of Treatments	Time of Treatment	Result
1	K. B.	Preparalytic poliomyelitis	9 yrs	10 hrs.	1	27 hrs.	R
2	A. D.	Preparalytic poliomyelitis	17 mo.	48 hrs	2	12 hrs. 17 hrs.	R
3	S. P.	Epidemic encephalitis	11 mo.	8 hrs	2	47 hrs. 20½ hrs.	R
4	R. L.	Epidemic encephalitis.	13 mo.	24 hrs.	2	27 hrs. 36 hrs.	R
5	J. M	Chronic encephalitis, parkinsonian	27 yrs.	4 yrs	2	5 hrs. 7 hrs	I
6	V. C.	Chronic encephalitis, parkinsonian	28 yrs.	7 yrs	1	20 hrs	N I
7	E. R.	Chronic encephalitis, parkinsonian	29 yrs.	6 yrs	1	22 hrs.	N I.
8	F. N.	Acute Sydenham chorea	10 yrs.	3 wk	1	4 hrs	R
9	S M.	Syphilitic meningitis hydrocephalus	7 mo.	2 mo	4	24 hrs 18 hrs 25 hrs 32 hrs	R
10	A. P.	Tabes	47 yrs.		2	7 hrs 15 hrs	I
11	W. R.	Tabes	41 yrs.	6 mo.	2	13 hrs. 10 hrs	I
12	E. T.	Tabes	27 yrs	3½ yrs	3	11 hrs. 12 hrs 8 hrs	I
13	M. L.	Tabes	55 yrs	10 yrs.	1	22 hrs	I
14	A. Z	Tuberculous meningitis	9 mo	2 da	2	6 da 4 da	D
15	R. W.	Tuberculous meningitis (clinical)	4½ yrs.	5 da	3	6 da 4 da 7 da	R
16	J. A.	Septic meningitis	7 yrs	48 hrs	1	6 hrs	D
17	W. C.	Septic meningitis	10 mo.	48 hrs	1	6 hrs	D
18	J. F.	Septic meningitis	2 yrs.	48 hrs	1	10 da	D
19	D. W.	Septic meningitis	12 yrs.	24 hrs.	1	7 da	D
20	A R.	Septic meningitis	53 yrs.	4 da	1	12 hrs	D
21	J. D.	Cerebrospinal meningitis	2 mo.	3 da	1	5 da.	D

* R indicates recovered; I, improved; N.I., no improvement, and D, death.

Prior to the publication of my first case reports on forced spinal drainage, there had appeared in the literature one case report in which this method was used. Casten[7] used forced spinal drainage in the treatment of tryparsamide amblyopia with complete success.

Fremont-Smith[8] and his co-workers used a modification of this method in the treatment of multiple sclerosis, giving a continuous drainage of the lumbar sac for from four to six hours. From 500 to 1,000 cc. of water was given by mouth per hour. Diuresis was delayed by an injection of 0.5 cc. of pitressin. While this method may reduce the osmotic pressure of the blood to some slight extent, I feel that the force is not sufficient to wash fluid through the intracellular spaces in the central nervous system.

Spurling[9] reported eight cases in which continuous spinal drainage was used. He performed a lumbar laminectomy followed by large amounts of water by mouth. One patient with poliomyelitis of six days' duration (a flaccid paralysis of the lower part of the body extending upward to include the intercostals and one leaf of the diaphragm) recovered. Spurling included four cases of septic meningitis with three recoveries and two of brain abscess with one death.

I am confident that forced spinal drainage cannot be done successfully without the injection of a hypotonic solution into the blood stream. At least 1 liter of 0.45 per cent sodium chloride solution should be injected, over an hour's time. In the more severe cases this injection must be given repeatedly. Clyses of physiologic solution of sodium chloride and water by mouth act as adjuncts to the intravenous injection, but only after this has been given. Fluid pathways through inflammatory tissue once established are easily maintained, but they are established only by an intravenous injection of hypotonic solution.

It is essential that the spinal fluid drip from the lumbar needle during the injection of the hypotonic solution and for at least an hour after it is given. If the drip ceases for any reason, the injection must be stopped until the drainage has been reestablished.

An occasional headache may develop but can be relieved by introducing the style into the needle for ten or fifteen minutes. Patients may rarely vomit, and this is not an indication to interrupt the treatment. Otherwise there have been no untoward symptoms in any of my cases. I am convinced that this treatment can be given with perfect safety. This conviction is based on over two thousand hours of forced spinal drainage given in twenty-two cases without any alarming symptoms.

SUMMARY

Forced spinal drainage was used in twenty-one cases of various infections of the central nervous system.

In four autopsies in cases of septic meningitis no hydrosis of any organ was found.

There was evidence of a washing of fluid through inflammatory areas.

Products of inflammation were washed from the depths of affected areas.

The field of greatest usefulness for forced spinal drainage was in diseases of the central nervous system characterized by perivascular round cell infiltrations.

Forced spinal drainage was shown to be a safe procedure. Over two thousand hours of treatment have produced no alarming symptoms.

ABSTRACT OF DISCUSSION

DR. H. WARD WILLIAMS, Rochester, N. Y.: Because of unsatisfactory results obtained with the Fremont-Smith method of spinal drainage in meningitis, I attempted to do a laminectomy in these cases. I had the distressing experience of having an abscess, secondary infection, occur back of the suture line of the laminectomy, with eventual death from that cause. In attempting to find some other method, it occurred to me that a laminectomy could be made with a small opening and might prove satisfactory. I succeeded in working that out. Though it is too early to say what is going to happen, it seems that the results have been highly satisfactory with that small laminectomy done through the speculum.

DR. GEORGE M. RETAN, Syracuse, N. Y.: I have been asked to say a word about the technic. After the lumbar puncture, the patient is placed on a Bradford frame with a window cut in the lumbar region. I believe that there is some hope in cases of septic meningitis. The difficulty has been insufficient drainage from the sac. In these cases drainage must be done from the lumbar sac because it is the lowest point of gravity. I have a special needle for this purpose.

---

[7] Casten, Virgil: New England J. Med. **202**: 676 (April 3) 1930.

[8] Fremont-Smith, Frank; Putnam, T. J., and Cobb, Stanley: Forced Drainage of the Central Nervous System, Arch. Neurol. & Psychiat. **23**: 219 (Feb.) 1930.

[9] Spurling, R. G.: Kentucky M. J. **26**: 242 (May) 1928.

The needle has a removable head so that it can be inserted, the head removed and a larger needle introduced over the smaller one. The first needle is then removed. This gives a freer drainage. In the treatment of septic meningitis, this needle is introduced first. If the patient improves, a lumbar laminectomy must be done because the drainage must be free every minute. That is the mistake that has been made in the past—not getting drainage free enough.

Clinical Notes, Suggestions and New Instruments

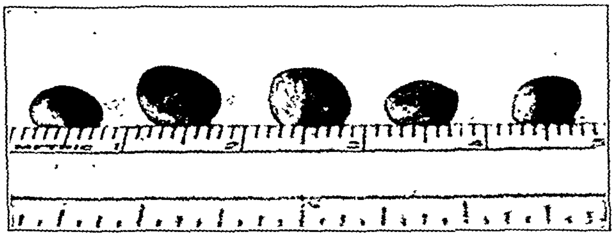
PHIMOSED PREPUTIAL SAC SERVING AS AN ADVENTITIOUS URINARY RESERVOIR

THOMAS V. WILLIAMSON, M.D., NORFOLK, VA.
Senior Staff Urogenitologist to Protestant, St. Vincents and Memorial Hospitals; Consulting Urogenitologist to the United States Veterans' Bureau

This case was unusual in that the preputial orifice was so greatly phimosed that a small quantity of urine always remained within the preputial sac, while at the same time five small, smooth and fairly round uric acid calculi were found entrapped therein.

A Negro boy, aged 15, presented himself in June, 1931, with the complaint of painful and difficult urination.

The patient was of the arrested mental development type and appeared to have the wit of a child of 10. The parents being absent at the time of the examination, no dependence could be placed in the past history. No information relating to urinary calculi could be elicited.



Calculi removed from preputial sac.

The boy had been having trouble in voiding the urine for some years. In the past six months the difficulty had been vastly increased; there was much soreness in the region of the glans penis, together with burning pain during and immediately after the act of urination. He stated that the urinary stream was quite small and that it took a long time, comparatively speaking, to complete the act.

The patient was tall, lanky and undernourished, and had a silly, vapid expression. Examination did not disclose anything pertinent to this report except on the penis.

The penis was very large for the age of the boy and there was much redundance of the foreskin. The orifice of the prepuce was phimosed to the extent that it would not admit an instrument larger than number 6 F. The tissues around the orifice were hard and thickened, and they presented the aspect of having been the seat of recent ulceration.

When the patient attempted to void, the redundant prepuce was seen to balloon out with urine to the size of a large lemon. The stream of urine was little more than a jet and had considerable force, being propelled for a distance of several yards. This urinary tumor within the preputial sac persisted until the act of voiding was completed; then it subsided slowly as the urine dribbled out. The sac was not completely emptied, however, as several drachms of fluid remained trapped within it. This residual urine was enough in quantity, when mingled with smegma, to constitute an irritating medium capable of inducing the pain and irritation suffered by the patient.

Several small, hard masses were felt within the preputial sac. These masses were freely movable, appeared to be entirely separate one from the other, and gave rise to a grating, calcareous sound on being rubbed together.

The operation consisted of circumcision. The fibrous tissue around the preputial orifice was almost cartilaginous in consistency and required forceful cutting with the scissors to divide. There were five dark brown bodies resembling uric acid calculi lying loose within the sac. They were fairly regular in outline and, for the greater part of their surfaces, smooth. This comparative roundness and smoothness seemed to be due to the fact that they had been able to move about freely and, in doing so, had rubbed against one another. This regularity of contour is a characteristic of all calculi that move around freely in a cavity such as the urinary bladder.

The inner surface of the prepuce was regular and glistening as though it had been kept polished by the passage of the imprisoned calculi passing back and forth over it. The glans penis was the seat of chronic inflammation and was irritated to a painful degree. The urinary meatus in the glans penis was smaller than normal and would not permit the calculi to be reintroduced into it.

Since the calculi were all too large to reengage in the urinary meatus, they evidently grew in size after they had passed from the bladder into the preputial sac. It may be that the residual urine within the preputial sac had been sufficient in quantity to permit this phenomenon, and it seems that the sac was never entirely empty unless the patient pressed the residue out. It may have been that the stones were developed in their entirety beneath the prepuce, particles of smegma acting as the central nuclei. The central parts of uric acid calculi are often porous and poorly organized, so that it is impossible to know definitely what the nuclei may have been at the beginning of the calcareous formation.

In this case the preputial sac was clearly an adventitious reservoir.

818 Medical Arts Building.

SPONTANEOUS RUPTURE OF AN APPARENTLY NORMAL SPLEEN

VINCENT J. DARDINSKI, M.D., WASHINGTON, D. C.

Spontaneous ruptures of the spleen are divided into two distinct groups: those occurring in an organ which is in any way altered from the normal, and those in which the spleen appears to be normal on macroscopic and microscopic examination.

Among the more common causes of rupture in the former group may be listed, in the order of frequency, according to Berger's[1] statistics, malaria, trauma, pregnancy (usually in cases in which the spleen was already diseased), typhoid, leukemia, syphilis, alcoholic cirrhosis, tuberculosis, hemophilia, capsular varices, typhus, anemia, eclampsia, relapsing fever, infarct, abscess and aneurysm. Among these Besnier[2] includes also epilepsy and purpura.

The causes of rupture in apparently normal spleens are not understood, and judging from the literature opinions are scarce. This, I believe, is due to the fact that such cases are rare and the material available for study is still more rare.

Up to the present there have been reported in the literature fourteen cases, exclusive of the present one, which appear to be fairly authentic reports, with the possible exception of the cases of Skerritt[3] and Atkinson,[4] which might be considered doubtful because of the very brief reports.

All these cases have been reviewed recently by Bailey[5] and Byford,[6] so another review of them at present is not necessary; but there are so few cases of this nature reported that I will include here a list of them in order to have the literature on this subject as complete as possible. Cases have been reported

---

From the Department of Pathology, Georgetown University School of Medicine.

[1] From Sajous's Analytic Cyclopedia of Practical Medicine, Philadelphia, F. A. Davis Company **8:** 303, 1901.

[2] Besnier, Ernest: Rate (Pathologie) in Dictionnaire encyclopédique des sciences médicales, series 3, **2:** 516.

[3] Skerritt: Brit. M. J. **1:** 641, 1878.

[4] Atkinson: Ann. Surg. **2:** 403, 1874.

[5] Bailey, Hamilton: Brit. J. Surg. **17:** 417 (Jan.) 1930.

[6] Byford, W. H.: Spontaneous Rupture of the Normal Spleen, Arch. Surg. **20:** 232 (Feb.) 1930.

by Shorten,[7] Connors,[8] Metcalfe and Fletcher,[9] Skerritt,[3] Atkinson,[4] Susman,[10] Rhame,[11] Remynse,[12] Capecchi,[13] Girling Ball (reported by Underwood [14]), Bailey,[5] Byford [6] and Nixon [15]

I believe that the present case is worthy of reporting because of the evidence suggesting the etiology of rupture

REPORT OF CASE

C C, a Negro, aged 40, admitted to Georgetown University Hospital, Jan 25, 1932, in the morning, complained chiefly of pain and swelling in the right upper abdominal quadrant and of shortness of breath

His present illness dated back to six weeks before admission, at which time he noticed a gradual loss of strength with occasional "dizzy" spells and pain in the right upper quadrant which had gradually increased in severity He had had slight dyspnea for the past five or six years, which had become more prominent in the past six weeks

His past and family histories were essentially negative except that the patient had been a hard drinker ("corn liquor") the greater part of his life

Examination revealed temperature 97 6 F , pulse 70, blood pressure 96 systolic and 74 diastolic, respirations 20 A systolic murmur was present over the second right interspace A large, tender, nodular mass was palpable in the right upper quadrant, and there was edema of the soft tissues of the abdomen Examinations of the blood and urine were not made The chemical examination of the blood revealed a nonprotein nitrogen of 64 mg per hundred cubic centimeters A kidney function test at the end of two hours was 30 per cent

At noon of the day of admission, while lying quiet in bed, the patient complained of a sharp, severe, sudden pain in the left side, in the lower costal margin, which gradually subsided but left him more dyspneic A dull ache persisted in this region until the third day after admission, at which time he became more dyspneic and complained of a sharp lancinating pain in the same region in which he experienced his first attack of pain This time, however, the pain did not remain localized in the left lower thoracic region in the midaxillary line but radiated upward, involving the left shoulder Following this complaint, the patient gradually developed all the symptoms and signs of shock, from which he never recovered He died three and one-half hours after complaining of pain in the left shoulder

The cause of death in this case was not suspected, but it was believed to be due to myocardial failure

At necropsy, both sclerae were moderately jaundiced The abdomen was distended and dull on percussion A healed scar 10 cm long was found in the right upper abdominal quadrant, which was at a right angle to the midline This was the result of a stab wound The extremities were not edematous

When the peritoneal cavity was opened, about 3,000 cc of fluid and clotted blood was found The blood clots were located in the upper portion of the abdominal cavity beneath the left lobe of the liver, completely filling the left upper quadrant

To avoid any misinterpretation of the hemorrhage, the spleen and surrounding organs were thoroughly investigated before any of the organs were removed

The spleen was found to be free from adhesions and was of normal size In the border of the lower pole could be seen a break in the capsule 2 cm long, extending from the convex surface over onto the concave medial surface On removal the spleen weighed 160 Gm and the capsule was of a normal slate color The capsule was markedly wrinkled On section it was dark red and the pulp was slightly softer than normal The markings were slightly indistinct No subcapsular or intrasplenic hemorrhages were found

Of the other organs that might have some bearing in this case is the liver It was greatly enlarged, weighing 3,725 Gm Its surface was irregularly nodular, produced by hard white elevated nodules, varying in size up to 3 cm Similar nolules were present throughout the entire substance of both lobes

The *anatomic diagnosis in this* case was spontaneous rupture of an apparently normal spleen with primary carcinoma of the liver

Microscopic examination of sections from these organs revealed a malignant hepatoma of the liver and apparently normal spleen

COMMENT

The history and observations in this case are reported in some detail for two reasons First, this is the fifteenth case of spontaneous rupture of an apparently normal spleen to be noted Second, I wish to enumerate a few of the signs and symptoms which appear to be fairly characteristic of this condition A sudden, sharp, severe pain in the left lateral lower thoracic region is usually the first complaint Often this complaint is unheeded because the initial pain gradually subsides, except for *some indefinite dull ache in the region of the spleen* Sooner or later, however, pain returns, more severe than before, and radiates to the left shoulder region (Kehr's sign [16]) This is particularly true in the cases in which a subcapsular hematoma had been formed prior to rupture into the peritoneal cavity

Ballance's sign [16] is another interesting finding often present in these cases which is seldom elicited It is an increasing area of dulness on percussion in the left flank, which seldom shifts when the position of the patient is shifted, as it does in bleeding from other intra-abdominal structures This is believed to be due to the more rapid coagulation of blood coming from the spleen as compared with blood from other tissues [16]

The rupture of the spleen in this case can probably be accounted for by an increase of pressure within the organ produced by a damming back of blood from the liver Evidence of this was found in the marked wrinkling of the capsule, which was produced by the escape of blood from the organ and a return to its normal size

CONCLUSIONS

1 The initial symptom of sudden, sharp, severe pain in the left lower lateral thoracic region is suggestive of splenic rupture

2 The presence of Kehr's and of Ballance's sign constitutes a fairly definite diagnostic aid

3 Evidence as to etiology is suggestive in a normal sized spleen with a markedly wrinkled capsule

---

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

W A Puckner, Secretary

SCARLET FEVER STREPTOCOCCUS TOXIN

(See New and Nonofficial Remedies, 1932, p 381)

The National Drug Co , Philadelphia

Scarlet Fever Streptococcus Toxin for Immunization (National) — Prepared by the method of Drs Dick under U S patent 1,547,369 (July 28, 1925 expires 1942) by license of the Scarlet Fever Committee, Inc Marketed in packages of five vials, containing respectively, 500, 2 000, 8 000, 25 000 and 80 000 skin test doses in packages of fifty vials ten containing 500 skin test doses, ten containing 2,000 skin test doses ten containing 8,000 skin test doses, ten containing 25,000 skin test doses and ten containing 80 000 skin test doses Also marketed in single vial packages containing 100,000 skin test doses

SCARLET FEVER IMMUNITY TEST (See New and Nonofficial Remedies, 1932, p 397)

The National Drug Co , Philadelphia

Scarlet Fever Streptococcus Toxin for the Dick Test (National) — Prepared by the method of Drs Dick under U S patent 1,547,369 (July 28 1925 expires 1942) by license of the Scarlet Fever Committee, Inc Marketed in packages of *one* vial containing sufficient toxin for ten tests in packages of one vial containing sufficient toxin for one hundred tests

---

[7] Shorten, W W Brit M J **2**·844 (Dec 27) 1919

[8] Connors J I Ann Surg **71** 1 (July) 1921

[9] Metcalfe R I , and Fletcher, L 7 Ann Surg **75**. 186 (Feb) 1922 (two cases)

[10] Susman, M P Brit J Surg **15** 47 (July) 1927

[11] Rhame, J S Ann Surg **88**. 212 (Aug) 1928

[12] Remynse, J G Nederl Tijdschr v Geneesk **1** 810, 1929

[13] Capecchi, E Policlinico (Sez Prat) **32** 665 (May 11) 1925

[14] Underwood, W E Brit M J **1**: 1118 (June 22) 1929

[15] Nixon, P I Spontaneous Rupture of the Normal Spleen, J A M A **96** 1767 (May 23) 1931

[16] DaCosta, J C Modern Surgery, ed 9, Philadelphia, W B Saunders Company, 1925, p 1044

Committee on Foods

GENERAL COMMITTEE DECISIONS

The Committee on Foods authorizes the publication of the following General Committee Decision adopted for its own guidance and for that of food manufacturers and advertising agencies on food advertising

Raymond Hertwig, Secretary

ANALYTIC STATEMENTS ON LABELS AND IN ADVERTISING

Analytic statements on labels and in advertising shall be expressed in such terms as will enable correct technical and popular interpretation and be properly and truthfully informative Listed analytic components shall be named in conformity with the methods used in their determination and preferably those of the Book of Methods of the Association of Official Agricultural Chemists The percentage values should be expressed in figures with significance only Proximate analytic statements for foods expressed to the units or the first decimal place only are in keeping with good analytic practice, in many instances the first decimal place is the limit of significance, in others the units place only is of practical significance percentage figures for the mineral elements, however, may extend to the second or third decimal place and in special cases even further

Analytic statements in advertising shall be simply and correctly informative and shall neither directly nor by connotation confuse or mislead those not specially informed in technical or scientific knowledge

REPORTS OF THE COMMITTEE

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations The products are approved for advertising in the publications of the American Medical Association and for general promulgation to the public They will be included in the Book of Accepted Foods to be published by the American Medical Association

Raymond Hertwig, Secretary

DAVIDSON'S DAINTY ROLLS

Manufacturer—Davidson Baking Company, Portland, Ore

Description—White rolls made by the sponge dough method (as described in The Journal, March 5, 1932, p 817), prepared from patent flour, water, sucrose, shortening, sweetened condensed skimmed milk, butter, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate

Analysis (submitted by manufacturer)—

	per cent
Moisture (entire rolls)	27 3
Ash	0 7
Fat	6 2
Protein (N × 6 25)	11 0
Crude fiber	0 5
Carbohydrates other than crude fiber (by difference)	54 3

Calories—3 2 per gram, 91 per ounce

FOODTOWN WHEAT POPS

(Flavored with Malt, Sugar and Salt)

Manufacturer—Foodtown Kitchens, Inc, Chicago

Description—Popped and toasted whole wheat flakes made from cooked whole wheat, flavored with malt extract, sugar and salt

Manufacture—Cleaned whole white wheat is cooked under steam pressure with a definite quantity of water in a rotary cooker and is flaked between rolls into thick flakes, which are dried by hot air in a "flight drier" to a definite moisture content A solution of malt syrup, sugar and salt is sprayed over the flakes, they are redried to a definite moisture content and are toasted in a rotary oven, which causes the starch cells to explode and puff the flakes into "wheat pops" in much the same manner as pop corn is popped The wheat flakes pass over "scalpers" to remove broken flakes The final wheat pops are packed in paraffin liners in paper cartons by automatic packing machines

Analysis (submitted by manufacturer)—

	per cent
Moisture	4 8
Ash	3 2
Chlorides as sodium chloride	1 9
Fat (ether extract)	1 3
Protein (N × 5 7)	9 8
Crude fiber	2 1
Reducing sugars as dextrose	0 9
Sucrose (acid inversion and copper reduction method)	6 4
Carbohydrates other than crude fiber (by difference)	78 8

Calories—3 7 per gram, 105 per ounce

Claims of Manufacturer—Ready to eat "popped" cooked and toasted whole wheat flakes supplying cellulose bulk to the diet as an aid to dietary laxation or regulation

UNION BRAND CRYSTAL WHITE TABLE SYRUP

(Corn Syrup and Granulated Sugar Syrup Flavored with Vanilla)

Distributor—Union Sales Corporation, Columbus, Ind

Description—A table syrup, corn syrup sweetened with sucrose, flavored with vanilla

Manufacture—A blend of corn syrup and sucrose syrup flavored with vanilla extract The manufacture is essentially that described for Pennant Crystal White Syrup (The Journal, Jan 30, 1932, p 402)

Analysis (submitted by manufacturer)—

	per cent
Moisture	25 5
Ash	0 3
Fat (ether extract)	0 0
Protein (N × 6 25)	0 1
Reducing sugars as dextrose	29 3
Reducing sugars as dextrose after invertase inversion	39 8
Reducing sugars as dextrose after acid hydrolysis	75 3
Sucrose	10 2
Dextrins (by difference)	34 6
Titratable acidity as HCl	0 01
Sulphur dioxide as SO	0 001
pH	4 9

No methods are available for accurately determining the composition of syrups of this nature, therefore the foregoing analysis is roughly approximate

Calories—3 0 per gram 85 per ounce

Claims of Manufacturer—A syrup for cooking, baking and table use and a carbohydrate supplement for milk modification for infant feeding

AUGUST NUTRITION BREAD

(Wheat and Rye Flours and Bran)

Manufacturer—August Bakery, Central Falls, R I

Description—A bread prepared by the straight dough method (method described in The Journal, March 12, 1932, p 889) from wheat and rye flours, wheat bran, water, malt extract, vegetable fat, salt, potato flour, yeast, powdered caraway seeds, and a yeast food containing calcium sulphate, ammonium chloride, potassium bromate and sodium chloride

Analysis (submitted by manufacturer)—

	per cent
Moisture (entire loaf)	32 0
Ash	2 4
Fat (acid hydrolysis method)	2 7
Protein (N × 6 25)	7 9
Crude fiber	0 9
Carbohydrates other than crude fiber (by difference) .	54 1

Calories—2 7 per gram, 77 per ounce

Claims of Manufacturer—This bread supplies cellulose bulk to the diet as an aid to dietary laxation or regulation

BABY'S CHOICE EVAPORATED MILK

(Sterilized, Unsweetened)

Manufacturer—Oatman Condensed Milk Company, Dundee, Ill

Distributors—Cardinal Milk Sales Company, Dundee, Ill

Description—This is the same evaporated milk as Oatman's Brand Evaporated Milk (The Journal, April 16, 1932, p 1376)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 3, 1932

MORE ABOUT FOOTBALL—AND HEALTH

Those who have followed the unusual discussion that has attended the exposures of the dangers of football and the fatalities of the 1931 season find amusement in the unyielding championship of the game, as it has been played, that persists in the collegiate world. One undergraduate paper shrieks that "football is no sport for the soft and the yellow. It draws on nerve, determination, and common 'guts.' There is a long grind, a systematic elimination, and a final realization that 'all that glisters is not gold.' That is life. Life is going to be an unpleasant surprise to some sheltered scholars. It is a dirty business that draws on nerve, determination, and common 'guts.' " Then follows a flamboyant appeal based on the nation's need of men who know literally how to "give until it hurts"—not just scholars. The writer proceeds to remind the detractors about the kind of men the nation is seeking today: "Fighters, who do not flinch at disagreeable work, long grinds, increasing devotion to their ideals—come what may. They are the kind of men who, when young, play football, follow the crew grind the year round, train hard for track, or basketball, or hockey. Sports played hard against disappointment, in the cold and in the rain, are putting the steel fiber in character. They are building up the physical machine by rough tempering."

Somehow such outbursts are reminiscent of statements made by some physicians who urge that sickness and pain develop character in patients. Sickness, like scholarship in the colleges, thus becomes a mere incident in the daily job. Curiously enough, the rising tide of criticism of collegiate football still seems to be less concerned with the sanctity of the healthy body than with the impact of the game, as now conducted, on other human values. A fearless player has even boldly asserted[1] that "football is not a game; it is an activity. It is not a form of recreation in which students can vent their healthy animal spirits, etc. It is so far removed from sport that the very idea of playing without complicated secret signals and plays, well rehearsed through weeks of practice, is absurd. Those boys who take football as a means of personal exercise and enjoyment, when and how they will, are tragically foreign to the modern spirit of football and they not only do not get any play out of those days they go out for practice, but they also lose the benefits of the ballyhoo that falls to those who with some success do obey the letter of the coaches' law."

Dean Gauss[2] of Princeton, an experienced observer of college students, has recently admitted that the undergraduate attitude toward football is changing. He regards it as significant, however, that "nowhere in undergraduate circles is the game criticized because it is too rough. It is criticized because it has been commercialized and professionalized. The undergraduate protests because he feels that football, as now conducted, so-called big-time football, does not fit into his changed perspective. He is nowhere demanding that it be abolished, but that it be conducted less as a big business and in larger measure as a sport by and for undergraduates."

The situation in regard to collegiate football is in some way not unlike that which characterized "hazing" in the colleges a generation ago. When sport plays wantonly with health, not to say life itself, it must be reformed. Dean Gauss has pointed out that formerly in the colleges throughout the country, at least a few freshmen were annually done to death in the often vicious initiations into college life or college fraternities. This certainly was regrettable and this quite as certainly has disappeared in 1932, in favor of "emotional controls approved by society." During the season for which practice is soon to begin, football ought to bring no further reminders of the necropsy room. Fortunately, enforcement of the new rules indicates the elimination of some of the hazards so obvious last year.

PITUITARY BASOPHILISM

Of all the fields of medicine today, endocrinology particularly has lent itself to speculation. Innumerable syndromes of polyglandular type have been described. A polyglandular syndrome is apparently nothing more than a group of secondary functional alterations occurring in the ductless gland series whenever the activity of one of the glands has become primarily affected. Further, the term as employed is restricted to those cases in which it is difficult to tell where the initial fault is located. Examples of diabetes in bearded women, of rapidly acquired obesity, of hypertension, of masculinization in the female and of sexual precocity in children of either sex, often associated with hyperplasias or tumors of one sort or another of the suprarenal glands, have been many and varied. That a primary derangement of the pituitary gland, whether occurring spontaneously or experimentally produced, is particularly prone to cause widespread changes in other endocrine organs has been known for a long time. Indeed, it has been strongly suspected that this centrally placed and well protected structure in all probability represents the master gland of the series. These derangements have been found to be associated either with a destructive lesion or with a tumefaction primarily involving one or another of the organs in question. These tumefactions have proved in most cases to be of an adenomatous character. Finally, it was recognized (first in the case of the thyroid) that adenomas of this kind were functionally active structures that produced hypersecretory effects. It then gradually came to be realized that the tumor need not necessarily be bulky but, quite to the contrary, striking clinical effects might be produced by minute adenomas. Hence it is the degree of secretory activity of an adenoma which may be out of all proportion to its dimensions that evokes the recognizable symptom complex in all hypersecretory states.

---

[1] Yale Alumni Weekly **41**: 513 (March 25) 1932.

[2] Gauss, Christian: A New Type of College Youth Evolves, New York Times Magazine, April 3, 1932.

Recently Cushing[1] has described a series of fourteen cases of basophilic adenomas of the pituitary gland and the associated symptom complex. The features observed in all the cases are (1) a rapidly acquired, peculiarly disposed and usually painful adiposity confined to the face, neck and trunk, the extremities being spared; (2) a tendency to become round shouldered (kyphotic), even to measurable loss of height, associated with lumbospinal pains; (3) a sexual dystrophy, shown by early amenorrhea in women and an ultimate functional impotence in men; (4) an alteration in normal hirsuties, shown by a tendency to hypertrichosis of the face and trunk in all the women as well as in the preadolescent male; (5) a dusky or plethoric appearance of the skin with purplish lineal atrophic areas; (6) vascular hypertension; (7) a tendency to erythremia, a count exceeding five million having been present in five of the cases in which blood counts were recorded; (8) a peculiar softening of the bones due to an increase in calcium output; (9) hyperglycemia; (10) variable backaches, abdominal pains and ultimate extreme weakness. Other features less consistently recorded have been purpura-like ecchymoses, whether from bruising or occurring spontaneously, aching pains in the eyes, polyphasia, polydipsia and polyuria, and a susceptibility to pulmonary infections.

In most of the cases described the condition occurred in relatively young adults, the patients were definitely undersized, and the average duration of the disease from onset to death has been slightly over five years. The syndrome is not uncommon. Numerous typical examples have been reported, the disease in most instances having been ascribed to a primary suprarenal disorder, for the reason that cortical suprarenal hyperplasia is a not uncommon postmortem observation. However, in six of the cases examined post mortem a pituitary basophilic adenoma was found; in two other cases the pituitary body was described as normal, but as serial sections were not made this statement may not have been correct. Minor changes were found in some of the other ductless glands. Hence it would seem that the pituitary lesion was a primary factor in the syndrome. Secondary endocrine disturbances in the polyglandular syndrome, conceivably affecting the suprarenals, are suggested not only by the hypertension and the pigmentation but also by the terminal extreme weakness, by the glycosuria on the part of the pancreatic islets, and possibly by the osteoporosis on the part of the parathyroid glands.

This notable differentation by Cushing of pituitary basophilism will stimulate physicians and pathologists to study with fresh interest and larger grasp the instances that may come to notice of so-called polyglandular syndromes.

PEPSIN AND RENNIN

The ability of gastric juice to clot milk has been ascribed by Hammarsten to a special proteolytic enzyme, chymosin or rennin. The Pavlov school and others, however, have long maintained that there is no necessity of attributing rennet action to a special organic catalyst. This view was seemingly supported by the well known fact that practically all proteolytic enzymes, even those from vegetable sources such as papain from the melon tree, can effect the clotting of milk. In his last contribution to this subject, in 1923, Hammarsten concluded that there was no positive proof against identity of pepsin and rennin.

Recently Kleiner and Tauber[1] have reported the isolation, in comparatively pure form, of a rennin preparation from the mucosa of the fourth stomach of the calf. This preparation shows the highest clotting power yet reported; at the same time it is practically devoid of peptic activity. The elementary composition and the properties of the preparation indicate that it is a thioproteose. Unlike pepsin, it contains neither chlorine nor phosphorus. The authors state that it differs from pepsin in other ways. Rennin is irreversibly inactivated by alkali, it is easily soluble in dilute acid, it is not coagulated by heat, it gives quite different protein color tests, and it is not dialyzable. Moreover, its iso-electric point is p_H 5.4, while that of pepsin is 2.75, and it is soluble in water at its iso-electric point, whereas pepsin is not. In addition, the New York investigators have shown that the enzyme is present in the mucosa in the form of a precursor that becomes activated, as does pepsinogen, by hydrochloric acid. The zymogen differs from the active enzyme in that it is completely destroyed by contact with 50 per cent alcohol Efforts to obtain rennin in crystalline form, as has been accomplished for urease, pepsin, trypsin and amylase, are yet unsuccessful

---

[1] Cushing, Harvey: The Basophil Adenomas of the Pituitary Body and Their Clinical Manifestations, Bull. Johns Hopkins Hosp. **50:** 137 (March) 1932. Further Notes on Pituitary Basophilism, J. A. M. A. **99:** 281 (July 23) 1932.

[1] Tauber, Henry, and Kleiner, I. S.: Studies on Rennin: I. The Purification of Rennin and Its Separation from Pepsin, J. Biol. Chem. **96:** 745 (June) 1932; II. The Isolation of Prorennin, ibid. **96:** 755 (June) 1932.

The contribution here discussed marks a distinct advance in our knowledge of the chemistry of the digestive enzymes, a field opened by the discovery of the starch-splitting power of saliva by Leuchs a century ago

NO PLACE TO TURN!—BUT THE CHILDREN'S BUREAU!

According to a report by Genevieve Forbes Herrick in the Chicago *Tribune* and a subsequent editorial,[1] the federal Children's Bureau in the Department of Labor, now twenty years old, celebrated its birthday with a statement on the radio about its rapid growth and the services it is rendering to the people of the United States Miss Katharine F Lenroot, assistant to the chief of the bureau, told about a mother who inquired by letter whether it would be all right to feed her baby gunpowder to cure styes on the baby's eyes The mother was quite properly informed that gunpowder would be anything but harmless and certainly would not cure the baby's styes Miss Lenroot is credited with the statement that twenty years ago mothers troubled by questions of that kind would have had *no place to turn*

Leaving aside for the moment the essential stupidity of the question, one is caught immediately by that phrase "no place to turn" If that is correct, there must be something wrong with the memories of a great many people who have not grown so old that they are willing to be considered senile There are still some comparatively young people who seem to remember that there was once a genus, now said to be approaching extinction, known as the family physician The family doctor, according to this tradition, used to usher babies into the world, not infrequently having been in attendance at the births of their proud young parents some eighteen to twenty years before Then he used to take care of them in all their ills, real or imaginary, major or minor He often dashed out at night to reassure frightened young mothers, he was always willing to answer all kinds of anxious questions, he reminded parents about vaccinations and then proceeded to vaccinate the children He was quite a valuable institution in the community, if tradition is correct Apparently tradition is all wrong, however, because Miss Lenroot says that the parent of twenty years ago would have had to feed gunpowder to her baby with a fine experimental motive in order to ascertain whether or not it would cure the baby's styes She would have had no other place to turn!

But there is comfort! Others also have been deceived In a recent hearing on the work of the Children's Bureau, seven members of the Senate Committee on Commerce, including Senators Moses, Broussard, Stephens, Hawes, Bailey, Coolidge and Bingham, united in a minority report to the effect that they were not wholly convinced of the value of the child health activities of the bureau, and Senator Vandenberg added his own minority report opposing the extension or reviving of the so-called Sheppard-Towner Maternity and Infancy Hygiene Act These gentlemen put their signatures to the following statement: "It is significant that medical societies, including the American Medical Association, . oppose this legislation . This significance is all the more marked because it is known that the doctors who belong to these societies give more than half of their time to the poor, without price and without considering their time, . . . they go to the hospitals in their large cities and in their communities day after day, week after week and year after year, operating to save the lives of poor people without charging one single cent for their services"[2]

Perhaps our memory was right after all Possibly family doctors actually did exist as reputed No doubt they still exist notwithstanding the extraordinary efforts of certain philanthropists, sociologists, economists and governmental bureaucrats to abolish them Under all the hubbub, the tumult and the shouting about medical costs and the decadence of medical service, the family doctor still exists! Even if there were no federal bureaus, mothers wishing information about the health of their children would still have some place to turn.

Current Comment

ARTIFICIAL ANTIBODIES IN PLANTS

About twenty years ago, European bacteriologists expressed the hope that specific antitoxins and specific antiseptics might be produced by artificial immunization of plants A few preliminary tests were made by growing seedlings in soil moistened with diphtheria toxin Extractives of these immune seedlings, however, showed no demonstrable diphtheria antitoxin The general conclusion was drawn that plants probably cannot produce artificial specific defensive hormones That this conclusion may have been premature is indicated by Kostoff's[1] currently reported production of specific precipitins and specific proteolysins by a somewhat more elaborate botanic technic The Russian plant pathologist studied the acquired immunities between heterologous grafts and stocks with different species and genera of solanaceous plants Nicotiana tabacum, for example, was grafted onto Nicotiana glauca By the end of thirty-five days, the graft extracts contained a ++ antiglauca precipitin (ring test) The grafted stock (glauca), however, produced no demonstrable antitabacum precipitin but did develop an insusceptibility to the antiglauca precipitating hormone secreted by the graft Study of the interaction of the same plant extractives by means of dialyzation technics seemed to confirm these results and revealed that the antiglauca precipitin is accompanied by an antiglauca proteolysin. The complexities and intricacies of research in modern immunology open fascinating pathways to the investigator.

---

[1] Chicago Tribune Wednesday, Aug 24, 1932, ibid, Friday Aug 26, 1932

[2] Maternity and Infancy Hygiene, 72d Congress, 1st Session, Senate Report 428 Part 2, March 14, 1932

[1] Kostoff, D Ztschr f Immunitätsforsch *74*: 339 (April) 1932

GALACTOSE

To most physicians the mention of galactose will serve merely to recall an apprenticeship in biochemistry during their student days. They are aware that this sugar rarely occurs free in nature but is readily built up in the mammary gland out of the dextrose of the blood into lactose. The latter is readily digested in the alimentary tract so as to yield dextrose and galactose, simple sugars that are in turn promptly absorbed. Galactose can then be converted into the physiologic carbohydrate glycogen and consequently serve the nutritive needs of the organism. Galactose occurs in the body also as an integral part of certain brain lipids. The assumption that galactose is poorly utilized has been corrected by Harding and van Nostrand[1] of Toronto, who have concluded, from experiments on man, that the conversion of galactose to dextrose can be much more rapid than has previously been supposed. More recent observations by Roe and Schwartzmann[2] at the George Washington University Medical School, in Washington, D. C., indicate that even in diabetic patients, who notably lack ability to metabolize dextrose in large measure without the assistance of adminstered insulin, galactose may nevertheless be utilized to an extent that is worth while. The blood galactose values obtained with diabetic patients after galactose ingestion were in all cases within the limits of the values obtained with normal persons on the same galactose intake. Perhaps the apparently good tolerance of diabetic patients for galactose is due to the fact that insulin may not be necessary for the anabolism of that sugar. Roe and Schwartzmann accordingly suggest that galactose might be made a valuable adjunct to the diet in the clinical management of diabetes mellitus. This is frankly contrary to the traditional views. However, the Washington biochemists venture to suggest that the use of a sugar having a nutritive value and satisfying sweetness, the administration of which by mouth produces practically no greater saccharemia in diabetic patients than in normal persons, might mark considerable advance in the control of diabetes and its undesirable consequences, such as diabetic retinitis and endarteritis, conditions alleged to be etiologically related to hyperglycemia. Galactose is also reported to have an excellent antiketogenic value.[3] Unfortunately, the cost of galactose is still too high to permit extensive practical tests of some of these suggestions. Usually, however, the industries find ways of overcoming such handicaps when prospects of new uses for their products beckon.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

September 5. Holiday; no broadcast.
September 7. Cancer of the Larynx.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:45 to 11 over Station WBBM.

The subject for the week is as follows:

September 10. An Unneighborly Disease.

This schedule is based on Chicago daylight saving time, one hour faster than central standard time.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. John MacKenzie Brown, Los Angeles, has been appointed professor and head of the department of laryngology, rhinology and otology at the University of Southern California Medical School.——Dr. Sven R. Lokrantz, medical director, Los Angeles city schools, served as medical director of the Olympic Games.

Survey of Heart Disease.—The department of public health of San Francisco began a survey of heart disease morbidity, August 1, with the intention of continuing it for at least one year. Forms stressing etiologic diagnosis will be sent to physicians, hospitals and outpatient dispensaries in San Francisco. In a preliminary survey from March 15 to June 15, conducted by the heart committee of the San Francisco County Medical Society, only 800 cases were reported. Of the more than 1,500 physicians addressed, less than 10 per cent filed reports on cases of heart disease. Less than 50 per cent of the city's hospitals reported cases. A total of 6,500 forms was sent out in this preliminary survey. In March this year heart disease became reportable for the first time.

COLORADO

Licenses Revoked and Restored.—The state board of medical examiners adopted a resolution, July 11, revoking the license to practice medicine of Dr. William H. Vail, Denver. At this meeting the license of Dr. Kalmen C. Sapero, Denver, was restored.

CONNECTICUT

Personal.—Walter L. Simpson, for the past two years superintendent of Grace Hospital, New Haven, has resigned, effective August 1.——Dr. Theodore F. Foster, Knoxville, Tenn., has been appointed superintendent of health of West Hartford.——Dr. John Purney has been appointed medical examiner for New Britain.——Dr. Ross Granville Harrison, Sterling professor of biology, Yale University School of Medicine, New Haven, received the honorary degree of doctor of science from the University of Dublin, June 29.

FLORIDA

Society News.—Dr. Hermon Marshall Taylor, Jacksonville, read a paper on "Hygiene of Swimming" before the June meeting of the Duval County Medical Society in Jacksonville. ——The Orange County Medical Society was addressed, June 15, by Dr. Cyril J. Marshall, Orlando, on "Syphilitic, Tuberculous and Carcinomatous Skin Lesions."——Dr. Thomas F. Jackson, Dade City, was host to the Pasco-Hernando-Citrus County Medical Society at dinner recently.

---

[1] Harding, V. J., and van Nostrand, F. H.: Variations in Blood and Urinary Sugar After Ingestion of Galactose, J. Biol. Chem. **85**: 765 (Feb.) 1930.

[2] Roe, J. H., and Schwartzmann, A. S.: Galactose Tolerance of Normal and Diabetic Subjects, and the Effect of Insulin upon Galactose Metabolism, J. Biol. Chem. **96**: 717 (June) 1932.

[3] Deuel, H. J., Jr.; Gulick, Margaret, and Butts, J. S.: J. Biol. Chem. **92**: xxiii (June) 1931.

Medical Society Sponsors Clinics.—The Orange County Medical Society recently adopted a plan for the operation of free clinics for the indigent in Orlando, scheduled to open September 1. A building has been donated by the county commissioners; water and lights are furnished by the Orlando utilities, and local welfare organizations will investigate patients and recommend them for treatment. According to the plan, there will be each week daily surgical clinics, three clinics for diagnosis, three for pediatrics, two for urology, three for diseases of the eye, ear, nose and throat, and two for obstetrics and gynecology. In addition, the Orange County Dental Association will conduct daily dental clinics. The physicians have agreed to discontinue all outside clinics for charity.

ILLINOIS

Society News.—Drs. George H. Ewell and Arnold S. Jackson, Madison, Wis., addressed the Schuyler County Medical Society, Rushville, September 1, on urologic problems and treatment of cholecystitis, respectively. Dr. Harold E. Marsh, Madison, conducted a clinic.——The Pike County Medical Society was addressed, July 28, by Drs. Harold Swanberg and Walter M. Whitaker, Quincy, on graduate study in Europe and practical electrocardiography, respectively.

Chicago

Facilities for Relief of Hay Fever.—The University of Illinois Research Hospital is conducting its second experiment with a special ward for hay fever patients. Special air filters free the air from pollen. Each week, from August 15 to October 1, a group of sufferers enters the ward for observation and tests, according to the plan. Only nights are spent in the hospital. Wesley Memorial Hospital has also announced the equipment of several rooms with air filters and rubber covered mattresses and pillows.

INDIANA

Dinner to Dr. Recher.—Friends from Brook, Kentland and Morocco honored Dr. Lawson H. Recher at a banquet, July 14, in recognition of his fifty years as a practicing physician in Morocco. A jeweled emblem and a fountain pen were presented to Dr. Recher.

Society News.—Dr. Thomas B. Noble, Jr., Indianapolis, addressed the Carroll County Medical Society, at Burrows, August 12, on "New Things in Surgery."——Dr. Harold A. Elkins, Mount Carmel, Ill., was the speaker before the Gibson County Medical Society, August 8, at Princeton, on "X-Rays of the Long Bones."——Dr. Thomas J. Beasley, Indianapolis, entertained members of the Hendricks County Medical Society at dinner at Indian Lake, near Indianapolis, August 5; Dr. Amos Carter, Indianapolis, recounted experiences of his fifty-four years of practice.

IOWA

Program of Linn County Medical Society.—Dr. Nathaniel G. Alcock, Iowa City, will address the Linn County Medical Society, Cedar Rapids, September 8, on one year's experience with transurethral prostatic resection; Dr. Robert A. Stewart will speak and conduct a clinic at Independence, September 29, on manic-depressive psychosis, dementia praecox, neurosyphilis and paranoia; Dr. Louis W. Sauer, Evanston, Ill., October 13, on feeding problems, including pyloric stenosis in infancy, anorexia in the larger child and malnutrition in the school child.

KANSAS

Licenses Revoked.—On June 21, the state board of registration in medicine revoked the licenses to practice medicine of the following for the reasons indicated: Dr. Clarence J. McKnight, Wichita, narcotic charge; Dr. Charles C. Keester, Wichita, conviction of manslaughter for which he is now serving sentence in the penitentiary, and Dr. David Gordon, Minneapolis, narcotic charge.

Society News.—Dr. John Albert Key, St. Louis, will address the Wyandotte County Medical Society, Kansas City, September 13, on "Arthritis, Experimental and Clinical." The Kansas City Southwest Clinical Society will meet with the county society in the morning at a clinical meeting on arthritis, when Dr. Key will hold a clinic at St. Margaret's Hospital.——Dr. Harry R. Wahl, Kansas City, addressed the Clay County Medical Society, June 29, in Clay Center, on "Recent Advances in Some Common Diseases."——The Franklin County Medical Society met, June 29, at Osawatomie, with addresses by Drs. Earle G. Brown, Topeka, and Richard L. Bower, Kansas City, Mo., among others, on undulant fever and the effects of sodium amytal on manic-depressive patients, respectively.

MARYLAND

Civic Groups Aid in Diphtheria Prevention.—For a number of years the Baltimore health department has assigned public health nurses to assist at the "baby days" of the Playground Athletic League during the summer and to cooperate with the Free Summer Excursion Society on the bay trips which it offers to about 1,300 parents and children each week. This year these civic organizations are cooperating with the health department in a campaign for the eradication of diphtheria. Toxoid inoculations are being made available for those who desire it at the "baby days" held in the schools and in the city parks and to families attending the excursions.

Health Department Retires from Robert Garrett Hospital.—An arrangement whereby the Baltimore health department has been conducting clinics for school and preschool children in the Robert Garrett Hospital was discontinued, September 1. Since this hospital was closed as a private institution eight years ago, Mrs. Henry Barton Jacobs has enabled the department to use a portion of the hospital for this purpose, carrying almost the entire expense for the service. Plans are being made for the transfer of the clinics for diseases of the eye and ear to the municipal building. It is hoped that the dental clinic will be removed to a neighborhood school. Plans for the tuberculosis, nose and throat and child welfare clinics had not been completed at the time of this report. During the eight years' existence of these clinics in the Robert Garrett Hospital, 83,550 children have been examined and treated. More than 500 children have been operated on annually for removal of tonsils and adenoids, and more than 3,000 have had refractions annually. The clinic services at the hospital were established through the efforts of Dr. Humphrey Warren Buckler, chief of the division of school hygiene, who began his uninterrupted service as a school physician to the city in 1906.

MASSACHUSETTS

License Restored.—At a special meeting of the board of registration in medicine, June 23, the license of Dr. John F. Cummings, Brockton, to practice medicine and surgery in Massachusetts was restored.

Personal.—Dr. Raymond A. Kinmonth, assistant superintendent of the Wrentham State School, has been appointed assistant to the commissioner in the department of mental diseases to succeed Dr. Charles Stanley Raymond, who has been appointed superintendent of the Wrentham school.——Dr. Michael Shaughnessy, Framingham, has been appointed medical examiner of the eighth Middlesex district to succeed Dr. James Glass.

Society News.—The Plymouth District Medical Society held its midsummer meeting at Plymouth, July 21. Speakers were: Drs. Herbert H. Howard, Boston, "Treatment of Ureteral Calculi"; Loring B. Packard, Brockton, "Present Status of Gastro-Intestinal Diagnosis by the Roentgen Ray"; Cadis Phipps, Boston, "Treatment of Pneumonia"; John S. Hodgson, Boston, "Treatment of Cerebral Tumors and Ventriculograms"; Timothy Leary, Boston, "Relation of the Medical Examiner to the General Practitioner."——Dr. Nels A. Nelson addressed the South End Medical Club, Boston, recently, on gonorrhea and syphilis.

MINNESOTA

Southern Minnesota Medical Meeting.—The annual meeting of the Southern Minnesota Medical Association will be held in Rochester, September 12. The morning will be devoted to clinics and demonstrations at the Mayo Clinic. Among speakers announced for the afternoon meeting are Drs. Horace Newhart, Minneapolis, on "Modern Methods of Caring for the Hard of Hearing"; Archibald H. Beard, Minneapolis, "Practical Diets in the Treatment of Diabetes"; Herbert W. Rathe, Waverly, Iowa, "Treatment of Congestive Heart Failure," and Theodore H. Sweetser, Minneapolis, "Pitfalls in the Diagnosis of Renal Tumors."

Chiropractor Sentenced.—George Sjoden, Kensington, a chiropractor, pleaded guilty, July 23, to practicing medicine without a license, before Judge Roeser at St. Cloud. He had agreed to cure a case of eczema for $20, the medicine to be obtained in Chicago, and had promised the patient immediate relief. Sjoden had been previously convicted of practicing medicine without a license. He is said to have admitted to the court that he had been arrested on two previous occasions for writing checks without sufficient funds, and to have been in other difficulties in Mora, Princeton and Motley. Sjoden claimed to be suffering from a severe case of asthma and stated that he would like to go to a different climate. Judge Roeser sentenced Sjoden to eight months in the Douglas County jail and gave him until August 2 to decide whether he would improve his health elsewhere. If he was still in Minnesota after that date he must serve his sentence.

MISSISSIPPI

Medical Fellowships.—The Mississippi State Board of Health, through the Rockefeller Foundation, has arranged for fellowships for one year's study for the following physicians, who will have choice of going to either Johns Hopkins University School of Medicine or Harvard University Medical School: Drs. James T. Googe, Meridian; George E. Riley, Jackson, and Archie L. Gray, Hazlehurst.

State Board News.—The Mississippi State Board of Health held its regular meeting, June 27-29. Medical examinations were conducted, June 28-29. Thirty-seven physicians were licensed to practice medicine, ten by reciprocity. At this meeting of the board, Dr. John W. Dugger, Jackson, director of the bureau of industrial hygiene and factory inspection for the past four years, was elected for another four-year term. Dr. Henry C. Ricks was selected to serve as director of the bureau of county health work. Dr. Ricks will succeed Dr. Calvin C. Applewhite, who has been transferred by the U. S. Public Health Service. The reduction in appropriation has made it necessary to discontinue the division of malaria control, and no appropriation was made to continue the activities of the bureau of communicable diseases.

MISSOURI

Society News.—The Buchanan County Medical Society was addressed, June 15, by Dr. James T. Stamey, St. Joseph, on "Some Uses of the Galvanic Current."——At the meeting of the Cass County Medical Society in Drexel, June 9, Drs. Otto J. Dixon and Joseph E. Welker, Kansas City, spoke on "Differential Diagnosis and Treatment of Intracranial Infection" and "Edema of Cardiac Origin," respectively.——Dr. Frederick B. Campbell, Kansas City, among others, lectured on proctology before the Clay County Medical Society, June 30, in Liberty.——Speakers before the Gasconade-Maries-Osage County Medical Society at Mount Sterling, June 23, were Drs. Richard S. Weiss, St. Louis, "Precancerous Dermatosis," and Louis H. Jorstad, St. Louis, "Cancer of the Lip and Mouth."——Allen O. Gruebbel, D.D.S., Lexington, among others, addressed the Lafayette County Medical Society in Odessa, June 28, on "Dental Hygiene and Diet."——At the June 24 meeting of the St. Francois-Iron-Madison County Medical Society, the speakers were Drs. Borden S. Veeder, St. Louis, "Some Common Conditions in Children and Their Treatment," and Warren R. Rainey, St. Louis, "Office Treatment of Rectal Conditions."——Drs. Herbert F. Van Orden and Elmer P. Monahan, Kansas City, addressed a joint meeting of the Johnson and Lafayette county medical societies, July 26, on "Rectal Complications of Pregnancy" and "Fungi of the Human Skin," respectively.

MONTANA

Society News.—Dr. Arlie R. Barnes, Rochester, Minn., addressed the Yellowstone Valley Medical Society, Billings, recently, on the treatment of cardiac disorders.——Dr. Albert D. Brewer, Bozeman, was elected president of the Montana Public Health Association, July 12, at its annual meeting in Miles City.

NEW YORK

State Sanitary Code Revised.—Extensive changes in the state sanitary code have been announced by the Public Health Council. Psittacosis and Rocky Mountain spotted fever have been added to the list of reportable diseases, and mumps, puerperal fever and trachoma have been removed. The period of detention for dogs suspected of being rabid has been reduced from three weeks to one week. Local health officers must now report carriers of typhoid and paratyphoid fever. The new code also provides that cases of chancroid, gonorrhea and syphilis may be reported by an identifying number or symbol, provided the physician keeps a record of the symbol; names must be reported, however, of persons who discontinue treatment while in the infective stages. Another new requirement is to the effect that eating places must inform customers whether raw or pasteurized milk is being served. In the section relating to swimming pools, regulations have been added requiring that foot baths containing fungicidal solutions be provided.

New York City

Gifts to Hospital.—New York Post-Graduate Medical School and Hospital announces the receipt of a number of gifts during July, as follows: $1,000 from the Josiah Macy, Jr., Foundation, for study of cholesterol metabolism in relation to arteriosclerosis; $2,000 toward current expenses, anonymously given; $7,500 from Mr. Allen Wardwell and $2,000 from the legacy of Mrs. Roger B. Williams toward expenses of the Reconstruction Unit. Final payment of a legacy totaling $25,000 from the will of Julia Seligman has also been made and the money used for research and philanthropic purposes in the eye clinic.

Personal.—Dr. Charles Gordon Heyd, president of the Medical Society of the State of New York, has been given the Legion of Honor Award while on a visit to France, it is reported. Dr. Heyd served during the World War in the French Surgical Corps and later was transferred to the United States Army. He is a native of Canada but has lived in the United States twenty-seven years.——Henry Fairfield Osborn, Sc.D., president of the American Museum of Natural History for nearly twenty-five years, celebrated his seventy-fifth birthday, August 8. He will retire from the presidency of the museum at the end of this year to devote himself to finishing a work on elephantine mastodons and other writing.

Graduate Courses in Neuropsychiatry.—Beginning October 3, Columbia University College of Physicians and Surgeons will offer graduate courses in neurology and psychiatry, designed for graduate medical students. The courses, which are aimed to cover, in part, the sociological and educational fields, are so arranged as to meet the desire of applicants feeling the need of further knowledge in these branches. During the first ten weeks of the academic year, beginning October 3 and ending December 10, there will be two series of courses, one devoted principally to psychiatry (trimester in psychiatry) and one devoted principally to neurology (trimester in neurology). Any individual course in either trimester, except clinical assignments in neurology and psychiatry, may be taken singly. Sixteen weeks, beginning January 23, 1933, and ending May 13, 1933 (semester in neuropathology), will be devoted entirely to intensive work in neuropathology. The executive officer is Dr. Howard W. Potter, 722 West One Hundred and Sixty-Eighth Street, New York.

Fraudulent Food Inspectors.—The health department issued a warning to food dealers, August 6, against unauthorized inspectors who present flashy "gold" badges as credentials. The official inspector carries an identification card bearing his photograph, his signature and the number of his badge. Dealers were warned to demand that any person claiming to represent the health department produce this card and, further, that police should be called when only a badge inscribed "Health Service City of New York" or other fake credentials were presented. It is reported that the fraudulent inspectors are hired by "health service" concerns which advertise for men to solicit food handlers' cards. When a man accepts a position as solicitor he is met as he leaves the building by a stranger, who tells him he will require a badge, which is then offered to him for $3. "Regular food inspectors of the department of health do not solicit," the health commissioner pointed out. "Food handlers are advised by them to go to the occupational clinic of the department of health or to their own physicians for examination for the health cards which every food handler must have."

OHIO

Activities of State Medical Board.—Dr. James M. Gorslene, Cleveland, was deprived of his certificate to practice in Ohio for six months after a hearing by the state medical board on a charge of unprofessional conduct. Dr. Gorslene has appealed to the Common Pleas Court. Among other items of business transacted by the board at its meeting, July 11-12, in Columbus, the certificate of Paul H. Strand, Youngstown chiropractor, was suspended for three months for advertising. Two hundred and eighty licenses to practice medicine and surgery were granted at this session.

Society News.—Drs. David A. Tucker, Jr., and Harold F. Downing, Cincinnati, addressed the Clinton County Medical Society at its June meeting on "Effects of Prolonged Use of Insulin" and "Early Diagnosis and Treatment of Acute Poliomyelitis," respectively.——Drs. Robert and Ralph G. Carothers, Cincinnati, discussed fractures at a meeting of the Greene County Medical Society, Xenia, July 7.——Dr. Nathan Worth Brown, Toledo, addressed the Wood County Medical Society in June on "Abdominal Symptoms in Cardiac Disease and the Relation of Acute Indigestion to Heart Disease."——At a meeting of the Geauga County Medical Society, Chardon, June 29, Dr. Scott C. Runnels, Cleveland, made an address on "The Facts of Maternal Mortality."——Dr. Charles H. Creed, Athens, addressed the Fairfield County Medical Society, Stoutsville, June 14, on brain tumor.——The Doctors Symphony Orchestra of Akron gave the thirty-eighth and final concert of the season, June 12, at Springfield Lake Sanitarium. The orchestra now has thirty-nine members.——Radiologists of Cincinnati have recently organized a radiologic section of the Cincinnati Academy of Medicine. Officers elected are Drs. Sidney Lange, president, and Harold G. Reineke, secretary. This section will furnish a program each year.

OREGON

Personal.—Dr. Seth M. Kerron, Eugene, health officer of the city and of Lane County for fifteen years, resigned, July 2. ——Dr. Joseph Myers, health officer of Albany since 1918, resigned, July 13. He is 93 years old.

Hospital News.—The new state tuberculosis hospital at Salem was formally opened to the public recently. The fireproof structure, which will accommodate ninety patients, cost $95,000, including equipment. Dr. Grover C. Bellinger is the superintendent.

PENNSYLVANIA

Personal.—The Lycoming County Medical Society at its annual picnic at Williamsport, August 12, observed the seventy-fifth birthday of Dr. Joseph W. Albright, Muncy, by presenting to him an album containing the names of the members of the society.

Philadelphia

Poliomyelitis Delays Opening of Schools.—Philadelphia public schools will not open the first week of September, as scheduled, because of an epidemic of infantile paralysis in the city, it was announced August 29. Twenty-nine new cases were reported over the week-end, bringing the total for the year to 331, according to newspaper accounts. In 1916, when a severe epidemic occurred, 387 cases were reported for the corresponding period. There have been twenty-seven deaths since January 1. Two weeks ago a corps of more than 100 physicians was assembled by Dr. J. Norman Henry, director of public health, to act as consultants in districts coinciding with their own neighborhoods if the disease should assume epidemic proportions. It was predicted that schools might not open before October 1. The Philadelphia County Medical Society at the request of the health department has asked all physicians who have or have had cases of infantile paralysis to send their names and addresses to the society in order that serum may be obtained from them for treatment in subsequent cases. Physicians are urged to report all suspicious cases promptly to the health department and diagnosticians will be sent at once if required.

SOUTH DAKOTA

Society News.—Dr. Philip F. Donohue, St. Paul, addressed the Twelfth District Medical Society, July 29, at Wilmot, on "Transurethral Prostatectomy."——Drs. John H. Moore and Edwin B. Banister, Grand Forks, N. D., addressed the Watertown District Medical Society, August 9, on "Alleviation of Pain in Obstetrics" and "Sinusitis in Children," respectively.

UTAH

Hospital News.—The new U. S. Veterans' Hospital at Salt Lake City, with a capacity of 103 beds, was placed in operation early in July with Dr. Horatio D. Luse as chief medical officer. Dedication ceremonies were held, July 24.

Personal.—Dr. Frank M. McHugh, Salt Lake City, president-elect of the Utah State Medical Association, and Dr. Lyman L. Daines, dean of the University of Utah School of Medicine, were recently appointed members of the Salt Lake City board of health.

WASHINGTON

State Medical Meeting at Tacoma.—The annual session of the Washington State Medical Association, which will be held in Tacoma, September 12-14, is to be devoted principally to the economics of medicine. Guest speakers will be Dr. Ray Lyman Wilbur, Washington, D. C., Secretary of the Interior and chairman of the Committee on the Costs of Medical Care, who will speak at the opening general session; Nathan Sinai, Ph.D., Ann Arbor, Mich., who will speak on "The Health Problem of the Industrial Worker" and on "Health Insurance"; Dr. Rosco G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, on "Current Trends in Medical Practice" and "Economics of Medicine"; Mr. Frank P. Foisie, Seattle, on "A Layman's Attitude on Medical Care of Injured Workmen" and Harry Ellsworth Foster, Olympia, assistant attorney general, "Some of the Legal Aspects of Reorganized Medicine." In addition, there will be reports on "Legislative Proposals Relative to the Medical Aid Law," "Present Status of Health Insurance in the State of Washington," and "Medical Care of Veterans and Government Employees." Dr. Joseph A. Pettit, Portland, will address the opening meeting on the work of the American Medical Association. Dr. Wilbur and Dr. Leland will address a public health meeting, Monday evening, September 12, under the auspices of the Public Health League of Washington, which will hold its annual meeting during the week. A scientific exhibit is being arranged by Drs. Conrad Jacobson, Seattle, and Treacy H. Duerfeldt, Tacoma. The annual dinner and dance will be given Tuesday evening at the Hotel Winthrop, and the Washington State Medical Golf Association is to have its tournament on Monday, September 12, at the Tacoma Country and Golf Club.

GENERAL

Honorary Members Elected.—The American Society of Clinical Pathologists announces the election to honorary membership of the following: Dr. Charles Achard, professor of clinical medicine, Faculty of Medicine, Paris; Dr. Edward C. Dodds, Courtauld professor of biochemistry, University of London, and Col. Charles F. Craig, director of the department of tropical medicine, Tulane University School of Medicine, New Orleans.

Spotted Fever in the East.—Fifteen cases of the eastern type of Rocky Mountain spotted fever are reported to have occurred within recent weeks in Maryland and five in Washington, D. C. Two Washington children died of the disease. In addition, the Maryland state department of health was said to be investigating fourteen cases reported as typhus fever but suspected of being spotted fever. Citizens of that area have been warned to exercise care when in the country to avoid woods and bushes that might harbor ticks. Vaccine against Rocky Mountain spotted fever, which was identified in the East only two years ago, is made only at the laboratory of the U. S. Public Health Service in Hamilton, Mont.

Cancer Films.—In the interest of medical education, the *American Journal of Cancer* is offering, without cost, a series of motion picture films on cancer for showing before medical groups. The films now ready for distribution are "Cancer of the Skin," based on material gathered by Drs. Joseph Colt Bloodgood and Charles F. Geschickter of Johns Hopkins University School of Medicine, and one showing "Technical Methods of Cancer Research," taken at the Institute of Cancer Research, Columbia University. The films are obtainable in either 16 or 35 mm. widths and are adequately titled so that no explanation is required while they are being shown. They are available for use in the United States only. Further information may be had from the Motion Picture Department, *American Journal of Cancer*, 1145 Amsterdam Avenue, New York.

Journal Transferred to Society of Parasitologists.—Henry B. Ward, D.Sc., professor and head of the department of zoology, University of Illinois, Urbana, owner and editor for eighteen years of the *Journal of Parasitology*, has given the journal to the American Society of Parasitologists. It now becomes the official organ of the society and the September issue will be the first under its auspices. An editorial committee will manage and edit the journal, assisted by a rotating editorial board representing the various divisions of parasitology. William W. Cort, Ph.D., professor of helminthology, Johns Hopkins University, School of Hygiene and Public Health, Baltimore, is chairman of the committee, and the other members are Robert W. Hegner, Ph.D., and Francis M. Root, professor of protozoology and associate professor of medical entomology, respectively, Johns Hopkins University, School of Hygiene and Public Health, Baltimore.

Health Conditions in 1932.—Inquiries made to public health officers throughout the country by the U. S. Public Health Service recently have revealed that the state of the public health is generally favorable. Mortality rates and prevalence of reportable diseases are said to be definitely less for the first six months of 1932 than for the same period in 1931. The infant mortality rate for eighty-two cities was 53.3 for that period as compared with 58.9 for 1931. It was pointed out, however, that the conditions which might be expected to increase under economic stress, such as malnutrition, are not reportable. In answer to a questionnaire sent to state health officers and a number of city and county officials, 88 per cent of the 94 who expressed an opinion said they believed the nonreportable diseases showed no appreciable change from 1930 or were less prevalent. More malnutrition and underweight and more demand for free hospital and clinic service were reported in some areas.

Warning Against Swindler.—A man giving the name M. R. James is reported to have swindled a number of physicians in Georgia by posing as a representative of the "Washington Instrument Company," of Washington, D. C. According to the report, this man offers standard medical and surgical equipment at greatly reduced prices, collects a payment, and cashes checks made out to the Washington Instrument Company before leaving a town. He is described as being about 35 years old, 5 feet 8 or 10 inches tall, with blue eyes and brown hair, and appears to be conversant with the business. It is suggested that physicians may protect themselves by refusing to give payments to any representatives or to make out checks to them individually. The Bureau of Investigation of the American Medical Association has no record of M. R. James or of the Washington Instrument Company. Telegrams addressed to the firm were returned with a notation that there was no such firm in Washington.

Fraudulent Salesman for Medicinal Liquor.—A Michigan physician has reported an impostor who claims to sell medicinal liquor and alcohol under a government permit as a representative of the "Ukiah Grape Products Company, 40th floor, Chanin Building, New York City." The physician gave an order and a check to the alleged salesman, who declined to have the usual official papers made out, saying that his firm saved the customer that trouble. When the victim did not receive his order, he wrote to the firm, but his letter came back marked "Removed—left no address." The Bureau of Investigation of the American Medical Association has no record of a firm of this exact name but does have a newspaper reference, dated 1924, to the "Ukiah Products Company" of New York, the manager of which was arrested for what was said to be a nation-wide plot for the distribution of high proof wine and for the alleged distribution of a so-called tonic, of 18 per cent alcoholic strength. It is not known whether the two firms have any connection.

Impostor Identified.—An account of the activities of an impostor in Bristol, Tenn., published in The Journal, August 6, page 484, brought to the American Medical Association a letter from a California physician enclosing the criminal record of a man whose methods closely resembled those of the man described in the Tennessee report. This record, taken from the annual report of the California State Board of Medical Examiners, contained a picture of a man who is variously known as George Stanley Paris, George I. Paris, George Samuel Isaacman and Samuel Paris. It was sent to Bristol, where the subject was identified as the same person who posed as "Dr. Wilson" there a few weeks ago and applied for admission to the staff of the local hospital. Meanwhile another report has come from Brooklyn, indicating that the same man has appeared there. Giving the name George S. Paris, he applied for membership on the courtesy staff of St. Catherine's Hospital, after which he cashed two checks for $10 each. Both were returned marked "no account." On his application blank at St. Catherine's, Paris gave two fictitious New York addresses and said that he was a graduate of Leland Stanford University. In addition, he claimed that he had served an internship at Cedars of Lebanon Hospital, Hollywood, and Hollywood Clara Barton Memorial Hospital, that he had been licensed in California and had a temporary license in New York, and that he was a member of the Los Angeles County Medical Society and of the American Medical Association. The California state board discloses that in 1931 a George S. Paris, while serving an "internship" at the Windsor Hospital, Glendale, Calif. (not an accredited hospital), applied for a position as ship's surgeon on a transpacific liner, stating that he was a graduate of the University of Illinois and that he held a California license by reciprocity. No record can be found to show that this person has ever even attended a medical school or received a license to practice. Records of the California Bureau of Criminal Identification and Investigation show that Paris has served several prison sentences in California and Missouri. The report of the California board indicated that at the time it was issued he was confined in the United States Disciplinary Barracks, Alcatraz, Calif., from which he was to be released, Jan. 15, 1932. The California records describe Paris as 5 feet 6½ inches tall, about 22 years old in 1931, with black hair and gray eyes.

CANADA

Hospital News. — The Toronto Orthopedic Hospital has been merged with the Toronto East General Hospital.——The cornerstone of a new surgical building for the Toronto Hospital for Consumptives at Weston was laid, June 1, by the mayor of Toronto.

Summer Clinics.—The annual "Summer School Clinics" sponsored by the Vancouver Medical Association will be held, September 13-16. Lecturers will be Drs. Louis H. Clerf, Philadelphia, who will lecture on various phases of otolaryngology; Leo Eloesser, San Francisco, on diseases of the lungs; George C. Hale, London, Ont., on heart disease and nephritis; William E. Gallie, Toronto, on fractures, birth injuries and sympathectomy; William B. Hendry, Toronto, on problems of pregnancy; Henry F. Helmholz, Rochester, Minn., on thyroid disorders and acute abdominal conditions in childhood and pyelitis; Frederick R. Miller, London, Ont., on functional neurology and myology, and Karl F. Meyer, Ph.D., San Francisco, on biologic products in daily practice, food poisoning, poliomyelitis and animal-borne infections. Dr. Thomas C. Routley, Toronto, secretary, Canadian Medical Association, will address a luncheon meeting, September 13. Clinics will be held in Vancouver hospitals three afternoons and a golf tournament on Thursday.

FOREIGN

Funds for Research.—About £120,000 has recently been made available to several English institutions for research in cancer and tuberculosis. The Royal College of Physicians of London will have £15,000 for work on tuberculosis and Westminster Hospital, £5,000. The Royal College of Surgeons of England will receive £10,000 and the Radium Institute £5,000 for cancer research, according to the *Lancet*.

Personal.—The Jacksonian Prize for 1931 has been awarded by the Royal College of Surgeons of England to J. Paterson Ross of St. Bartholomew's Hospital for an essay on surgery of the sympathetic nervous system.——A portrait of Sir W. Ashley Mackintosh, emeritus professor of medicine at Aberdeen University, Aberdeen, Scotland, was recently presented to the university as a testimonial from his friends and former students. A replica was presented to Sir Ashley and a fund of £1,000 remaining from the project will be used at Sir Ashley's request for the aid of students in time of sickness.

Graduate Course in Pediatrics.—The Faculty of Medicine of the University of Strasbourg announces a course in pediatrics to be given at the Children's Clinic, October 10-22, under the direction of Professor Rohmer. A variety of subjects will be covered, including nutrition and feeding of infants and older children, digestive disturbances, infectious diseases, disorders of the nervous system, tuberculosis and hereditary syphilis and social aspects of child health. For information address Professor Rohmer, director, Children's Clinic, Hôpital Civil, Strasbourg, France.

Stolp Prize Competition.—The biennial scientific competition of the Janus Stolp Foundation of the University of Leiden has been announced. The subject chosen is "An Original Contribution on the Psychology of the Knowledge of Space in the Blind." It is desired that the essayists should make a general résumé and critical review. Manuscripts, which must not exceed 40,000 words, are to be sent to Prof. W. B. Kristensen, 31, Witte Singel, Leiden, before Jan. 1, 1934. They may be in Dutch, German, English, French and Latin and must be typewritten, signed with a motto and accompanied by a sealed envelop with the same motto enclosing the name and address of the writer. The winner will receive a gold medal of the value of 250 florins and 250 florins in money, or if he prefers, the whole sum in money.

Government Services

Change of Station in the Navy

Lieut. Thomas M. Arnett from naval hospital, Washington, D. C., to marine barracks, Quantico, Va.; Lieut. Ralph M. McComas from naval hospital, Boston, to naval training station, Newport, R. I.; Lieut. Comdr. Robert H. Collins from U. S. S. *Saratoga* to naval dispensary, naval air station, Sunnyvale, Calif.; Lieut. Robert A. Cooper from navy yard, Boston, to the Asiatic Station; Lieut. Howard K. Sessions from naval hospital, New York, to naval air station, Lakehurst, N. J.; Lieut. Herbert G. Shepler from naval training station, Newport, R. I., to the Asiatic Station.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 6, 1932.

Cancer Research

The ninth annual report of the British Empire Cancer Campaign points out the trend toward a biologic view of the nature of cancer—the gene nutation theory. The work on cancer antiserum has excited considerable interest. Dr. Lumsden and his co-workers have succeeded in separating the euglobulin fraction of an anticancer serum from sheep ten times more effective in destroying cancer cells than the serum from which it is derived. Injections into implanted mouse tumors produced destruction of the tumor and absorption of the cells, and cancer immunity followed (autovaccination). Similar treatment of spontaneous tumors seems promising. Undestroyed portions of the tumor were removed and implanted elsewhere. If the autoplasts failed to grow the mouse became resistant, so that cancer cells were both prevented from growing and were destroyed. In a control group treated with normal sheep serum the tumors were not affected. Dr. Lumsden states that two curative processes follow the treatment. Local destruction of tumor cells occurs when the concentration of euglobulin is sufficiently high. This reaction is rapid and soon ceases to be effective, but by a mechanism of autovaccination it immunizes the mouse against cancer, and its tissues acquire an increased resistance, which completes the local cure and prevents recurrence. However, Dr. Lumsden is not yet prepared to recommend the treatment for human beings and earnestly begs that no requests be made for serum for this purpose.

CANCER-PRODUCING SUBSTANCES

Dibenzanthracene has proved a potent cancer-producing substance. Dissolved in fats, it produces connective tissue tumors and sarcomas in mice and rats. The tumors can be passed on by grafting into other mice and rats and have now reached as many as thirty-seven generations. Mustard gas seems to retard the production of cancer by these and other carcinogenic agents. Further work on tobacco tars shows that smoking plays little or no direct part in the production of cancer.

TREATMENT

Observations extending over three or more years in a considerable number of cases treated by radium (cervix, breast, tongue, pharynx and rectum) allow an estimate of the percentage of cures. This is rather disappointing, though there are encouraging signs of improvement with increasing refinements in the methods of applying radium. With better methods of filtration, cases of late radium reaction are becoming less frequent. In cancer of the rectum, striking differences are found in the survival rate after operation according to the parts affected. When limited to the rectal wall, excision completely eradicates the disease; when there is extrarectal spread but no gland metastases, a good prognosis is justified; with gland metastases, surgery is disappointing. The percentages of patients alive after years in these three groups were, respectively, 80, 73 and 7.

Preservation of Food by Carbon Dioxide

Experiments carried out by the government low temperature research station at Cambridge and the fish research station at Aberdeen promise to open up a new area in the preservation of food. Solid carbon dioxide has been extensively used as a refrigerant in trades such as the ice cream industry and in the transport of fish and other perishable foodstuffs. But its potentialities in preservation, apart from the refrigeration of food, now seem to be much more important. It has been proved that carcasses or fish can be kept fresh for long periods in an atmosphere rendered inert by carbon dioxide and maintained at a low temperature. The meat keeps in perfect condition, as if freshly killed, and suffers none of the deterioration caused by chilling or refrigeration. The cool carbon dioxide inhibits bacterial deterioration. By means of this method it should be possible to import fresh meat from Argentina and Australia. The potentialities in the supply of fish are even greater. At present fish from as far as the Greenland banks has to be packed in ice and quickly disposed of on landing. Trawlers fitted with carbon dioxide apparatus could bring back fish fresh as when caught from the farthest arctic fishing grounds or even from below the equator, where the seas have never been fished despite their richness in fish life, owing to the impossibility of bringing back the catch in a fresh state.

Low Mortality Record for Tuberculosis

In harmony with the continuous fall in the mortality from tuberculosis in Great Britain over nearly a century, the figures for the year 1930 are the lowest on record:

	England and Wales	Scotland
Total number of deaths from tuberculosis:		
All forms	35,745	4,286
Pulmonary	29,414	3,024
Death rates from tuberculosis per 100,000 population:		
All forms: Males	103.7	95
Females	77.0	82
Pulmonary: Males	86.3	68
Females	62.4	58

All ages and both sexes share in the decline, which is more marked in childhood and less in young adult life and old age.

INCREASE OF TUBERCULOSIS IN YOUNG WOMEN

But there is a curious exception to the general decline of tuberculosis. At the eighteenth annual conference of the National Association for the Prevention of Tuberculosis, Dr. N. D. Bardswell, principal assistant medical officer of the London county council public health department, stated that there was an increase in the mortality from pulmonary tuberculosis in young women at ages 15 to 25, which was practically limited to the unmarried. The increase dated from 1901, the period of the emancipation of women, when a profound change took place in their social habits on their entry into a wage-earning life. He attributed the increase to (1) fatigue consequent on their employment and long journeys to and from home in overcrowded trains and busses, (2) want of rest and late hours to bed following amusements after a long day's work, (3) neglected colds, and (4) unsatisfactory meals, such as "the tea and bun lunch." Clerks, typists and shop assistants were as prone to break down with pulmonary tuberculosis as young factory workers, machinists and others engaged in poorly paid trades. That the young married women did not break down like the unmarried worker of the same age he attributed to the advantage of removal from the ranks of wage earners.

Spahlinger's Vaccines

The reticence of Spahlinger in spite of his claim that he has disclosed his secrets has already been mentioned in The Journal (April 23, p. 1487; and July 2, p. 46). He has recently submitted a statement to the government, and it has been sent to various scientific authorities. They all draw attention to the general character of the statement and the absence of the necessary details of bacteriologic technic. They regard the information as insufficient for the preparation of vaccines identical with his. They note that the statement does not relate to the preparation of the curative serum used by him for the treatment of tuberculosis in man. The medical research council and the majority of the other authorities consulted consider that if a sufficient quantity of bovine vaccine can be supplied by Spahlinger the question of experimental trial on animals might be considered. But detailed information as to dosage, methods of administration and standardization would be required. They consider that a clinical investigation of the immunizing value of the human vaccine in human beings would be undesirable. The ministry of agriculture is in communication with Spahlinger concerning an experimental trial of the bovine vaccine on animals, and details of the method of preparing and administering bovine vaccine. Spahlinger has undertaken to supply a sufficient quantity of the bovine vaccine as soon as it can be prepared.

Lord Moynihan's Presidency of the Royal College of Surgeons

After holding the office of president of the Royal College of Surgeons for six years, Lord Moynihan has been succeeded by Sir Holburt Waring. His tenure of the leading position in the British surgical world has been distinguished in several ways. He was the first provincial surgeon to be elected and he has held the office for an unprecedented period, twice as long as any of his predecessors. But it is the great reforms made during his presidency that render it memorable. Before his time the college was regarded by many people as an examining body with an admirable museum, in connection with which important lectures were delivered. Under his lead extensive provision has been made for experimental research. He has never been tired of preaching that to the great detriment of surgery, laboratory experiments are carried on regardless of its problems and mainly for the advance of physiology. Now a new suite of laboratories has been added to the college. Still more important, the Buxton Browne research farm has been established at Downe in Kent, near the former home of Charles Darwin. Lord Moynihan has also collected large sums for research and the endowment of scholarships, which carry the stipulation that the holders shall continue to work in the hospitals. Thus his ideal that hospital work, museum work and laboratory work should be brought into conjunction has been achieved. Lord Moynihan is now looking forward to spending more time in his northern home and returning to his practice in Leeds, where he made his reputation as a surgeon.

The Voluntary Sterilization of Defectives

The sterilization of mental defectives continues to be a subject of controversy. In a joint letter to the *Times*, a number of leading physicians, who are members of the Eugenics Society, state that there are good reasons for supposing that mental deficiency is increasing. Of the estimated 300,000 mental defectives in England and Wales, only a small proportion are confined in institutions and it is not feasible or even desirable to segregate more than a third of the total. It is generally agreed that no mental defective should have children, irrespective of whether the defectiveness results from hereditary or from environmental influences. The Eugenic Society has never advocated sterilization except as an auxiliary to segregation. The proposals, made from time to time in favor of sterilization as an economical substitute for segregation, have never received the support of the society, and the members of the society do not regard it as probable that the legalizing of a voluntary and carefully safeguarded measure of sterilization would be followed relaxation of the efforts now being made to extend existing institutional provision. But they believe that the legalizing of voluntary sterilization will be welcomed by local authorities as a valuable accessory means for dealing with an otherwise discouraging problem. It would do much to disseminate the eugenic conscience which would be necessary for tackling the larger problem of sterilizing subnormal carriers of defect. These carriers can often be detected, particularly if they have already given birth to defective children. Many of them belong to a recognizable low grade, though not certifiable. The society therefore recommends the legalizing with safeguards of voluntary sterilization, accompanied by the educative influences of the Central Association for Mental Welfare and other organizations.

PARIS

(From Our Regular Correspondent)

July 27, 1932.

Meeting of the French Assembly of General Medicine

The Association française de médecine générale, the creation of which was announced in these letters, held recently its first meeting in Paris, at the Hôpital de l'Hôtel-Dieu, under the chairmanship of Professor Carnot, with the attendance of a large number of delegates from Paris and the provinces, including Professor Stassen of Brussels. The discussions centered about rural tuberculosis, the rôle of heredity and of contagion in tuberculosis, the age at which contagion commonly occurs, and the best methods of prophylaxis. Following the presentation of the communications, Professor Carnot, Dr. Jules Renaut and Dr. Lesné summarized the opinions uttered, comparing them with the usually accepted theories, in order to arrive at conclusions; for that was the original purpose of the new association—namely, the comparison of documents coming from the general practitioners in all points of France. The conclusions reached were drawn up in the following form: Rural tuberculosis is frequent. In its transmission, heredity and contagion play a big part. It is impossible clinically to establish the relative importance of each, but from a practical point of view there are tuberculous families; the descendants are weakly and easily become victims of the disease. Contagion, which is chiefly to be feared, develops in an hereditary or an acquired terrain. Contagion may occur at any age. It does not spare the child, the adult or the aged; but the child is more susceptible to contagion. The disease is prevalent within the family in the most salubrious regions—in the isolated cottages of the mountains as well as in the plains. The person responsible may be spreading the disease by coughing; he often left the village for the city in good health and returned sick to his native heath. The rôle of contagion thus imported has been considerable in recent years. Ex-service men who contracted tuberculosis in the army and were invalided home or were discharged have been frequent sources of infection in the rural districts.

Among the many conditions that are regarded as conducive to the appearance of tuberculosis, there are in the rural districts the same causes of organic deficiency that are found in the cities: overwork, late hours, dissipation commonly associated with alcoholism (so frequently encountered in poor tenements), poverty and insufficient or defective alimentation. The solution of the problem is complex. Vaccination alone will solve it some day. It is too early to make vaccination compulsory, but it is already recommended by many physicians in contaminated environments. Compulsory notification, which is desired in many quarters, is not feasible at present; it has, however, been proposed for the local dispensary, an auxiliary organism of the attending physician, a center of equipment and of social preservation. Such preservation would be greatly favored by antituberculosis instruction, which should begin in school and should be continued afterward, in both village and city. All physicians protest against the inadequate nature of the means of isolation. The sanatorium, it is held by some, has outlived its usefulness. The departmental *sanatorium-hospital* is unanimously demanded. Convinced of the importance of contagion, the physician considers the isolation of the spreader of tubercle bacilli indispensable. The second Sessions des assises médicales will consider the topic "Cancer Houses," under the chairmanship of Professor Castaigne.

The French Congress of Medicine

The twenty-second session of the Congrès de médecine de langue française will be held in Paris, Oct. 10-12, 1932, under the chairmanship of Prof. Fernand Bezançon, with the president of the republic in attendance. The detailed program has been published in order to make an appeal for articles written by the clinicians of France and foreign countries. Three important questions have been placed on the program: On the first topic, "Lymphogranulomatosis," the following papers will be presented: Anatomoclinical forms of malignant lymphogranulomatosis. Speakers: Mr. Maurice Fabre of Lyons: Anatomoclinical Characters of Malignant Granulomatosis; Its Abnormal Types; Messieurs Huys of Brussels and Gibert of Geneva: Radiotherapy in Malignant Lymphogranulomatosis; Messieurs Weissmann-Netter, J. Delarue and V. Oumansky of Paris: The Results of Experimentation in Malignant Lymphogranulomatosis. The second topic on the program will be "Acrocyanoses." Messieurs Villaret, Justin Bezançon and Cachera will consider "The Physiology and Pathology of Peripheral Vascular Disorders; Messieurs May and Layani will present a clinical study on "Essential Acrocyanosis." The third question on the program will be "Medicosurgical Treatment of Pulmonary Abscesses." Messieurs E. Sergent and Kourilsky, with the surgical collaboration of Messieurs Baumgartner and Iselin, will consider "The Therapeutic, Medical and Surgical Indications in Pulmonary Abscesses." Mr. G. Lardennois will study the operative technic. Messieurs Kindberg and Soulas will speak on "The Bronchoscopic Methods in Pulmonary Suppurations." Mr. Etienne Bernard will discuss "The Action of Emetine in the Treatment of Pulmonary Abscesses." Announcement of further communications on the various subjects should be made to the General Secretary, Professor Abrami, 9 Rue de Lille, Paris.

BERLIN

(From Our Regular Correspondent)

Aug. 1, 1932.

Is Unemployment Undermining the Public Health?

"Unemployment in Germany is affecting to a terrible extent the nutritional condition of the poorer classes. A large number of insured persons and their children who are quartered in sanatoriums and homes for convalescents are found, on admission, to be in a physical condition corresponding to the worst postwar years." It was Dr. Frommhold, the president of the Landesversicherungsanstalt Hannover, who uttered these alarming words. On inquiry of several *landesversicherungsanstalten*, the federal public health service, the sociohygienic institutes and many physicians, it was found that these observations reflect the conditions in at least certain portions of the country. The physicians of some children's sanatoriums and homes for convalescents (particularly in central Germany) report that many children who are admitted to the homes hardly know what it means to have an adequate warm meal. It often happens that at first they cannot retain the nourishing warm food prepared under medical supervision. Sometimes two weeks elapse before these young patients can get accustomed to a normal diet with adequate warm meals. Furthermore, many women and girls are again found to be suffering from serious anemia, a disease that, during recent years, appeared to have been eradicated. These anemic patients, for the most part, had not had proper warm meals.

Likewise from tuberculosis sanatoriums information is furnished that the patients—including men and women—are often weak for lack of food, when admitted, and that it takes about two weeks to get them into a somewhat normal condition of nutrition.

In Berlin conditions appear to be distinctly better, although it must be admitted that here also there are many undernourished women and children. In any event, the condition of health has not been found to be so undermined that the patients in the institutions cannot retain their food. As a rule, more marked undernutrition was observed among the women, because they commonly deprive themselves of food, in the presence of a scarcity, in order that the men—the bread winners—and the children may not suffer a lack.

On the other hand, everywhere the peculiar observation has been made that unemployment in itself has not yet led to a marked lowering of the condition of health of the population. The person who is out of employment is often able to live a healthier life than when employed; he gets more fresh air and outdoor exercise, and has an opportunity to get all the sleep and rest he needs. These factors serve to counteract in a measure the effects of poor and inadequate food.

In the smaller towns and in the rural districts, where public aid is less organized, such conditions may be found when the unemployment has lasted for many months. Then, too, there are extensive districts in which tobacco workers have usually been poorly nourished and in an undermined condition of health. Furthermore, workers in these regions, in contrast with other industrial centers, suffered earlier from unemployment, because, on account of the strict limitation of the importation of foreign tobaccos, many whole factories have had to close down. But such conditions are rather the exception. Taking the population of the *reich* as a whole, the present state of nutrition of the German people is not unfavorable. Last year the federal public health service rendered to the reichstag a report on the state of nutrition of Germany's population, extending up to January, 1931. This report was surprisingly favorable. Nor has this year—thus far, at least—brought any information of a general lowering of the state of health. Likewise, the deaths from tuberculosis, the spread of which is usually furthered by defective nutrition, show a downward trend.

There is, to be sure, a wide range between undernutrition and death. Exact data on the nutritional conditions are received by the federal public health service only once a year in the reports of the *länder* and of their subdivisions. In view of the ever widening economic crisis, the authorities have decided to institute an inquiry now and not wait until the end of the year. The results of the inquiry will be published in September. It will then be seen whether or not the conditions reported from Hanover have spread to other sections.

Decline of Venereal Diseases

In a recent report published by the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten, Dr. Roeschmann tells of the effects of the federal law pertaining to the combating of venereal diseases, during the past five years. The recent census taken in Berlin, Altona and Magdeburg shows a marked decline in the incidence of such diseases. The municipal consultation centers are visited much more frequently than formerly. The law prohibiting quacks from treating persons with venereal disease has had a favorable effect. Also the sources of infection, toward which the authorities were formerly almost powerless, have been ferreted out much more successfully under the operation of the new law. The more direct relations established between the public health service and the medical profession by means of the social service organizations and the creation of treatment centers have been found to be valuable.

Limitation of Hospital Care

The Reichsausschuss für Aerzte und Krankenkassen has promulgated new regulations, which provide that hospital care shall be prescribed only when operations are involved that are generally performed only in clinics, or when, because of the nature of the malady or the special circumstances, the necessary and proper treatment can be given only in a hospital. Before hospital care is ordered, a careful inquiry must be instituted to discover whether or not, by calling in a specialist or by referring a patient to a specialist for treatment, hospital care can be avoided; whether domiciliary care will not take the place of hospital care, and whether admission to an infirmary or to an old people's home is indicated. The reasons for prescribing hospital care should be stated in the order. In cases involving danger to life, in cases in which invalidity threatens, and in communicable diseases the scientific diagnosis of the disease suffices as justification. Hospital care—aside from urgent cases—will be approved by the *krankenkasse* only when its consent has been secured before the patient has been admitted.

The New University Women's Hospital

Visitors in Berlin who looked up the old Universitätsfrauenklinik in order that they might at least see the famous center that, through the untiring labors of eminent scientists, had become an institute of world renown, were surprised and disappointed when they entered the plain appearing buildings in Artilleriestrasse, whose external appearance was not at all in keeping with their scientific importance. The original clinic was established in 1818, and the buildings the reconstruction of which is now nearing completion were opened just exactly fifty years ago. In 1886, the large auditorium was added, and in 1910 the Ida-Simon-Stiftung. But in the main the rooms had remained unchanged, and it will be easily understood that, in view of the many great developments of medical research, they were no longer equal to modern demands.

It is not so surprising, therefore, that Professor Stoeckel, the present director of the Universitatsfrauenklinik, when, in 1925, he became the successor of Bumm, accepted the responsible post only on the condition that the clinic would be reconstructed and enlarged in keeping with its present importance. The economic disturbances of the past few years have been unfavorable to a realization of these plans. Finally, however, the new structure is nearing completion. In view of the limited funds that were available, what has been accomplished is deserving of the highest praise and recognition. The plans for the new building were worked out by the most intimate collaboration between clinicians and architects, during the years 1925-1927; and it must be admitted that, while the chief stress was put on the practical side, the esthetic was by no means neglected. Special difficulties arose in connection with the foundation, which necessitated the sinking of reinforced concrete caissons. The building has a skeleton steel structure, with a length of 135 meters.

On the main floor is the Policlinic, which is spacious enough so that women patients may receive individual attention. Adjacent is the admission room for parturients. Farther on come the bath rooms, the examining room and finally the delivery rooms—two for normal confinements, with six beds each, and a ward in which pathologic confinements are completed by operation. The students are separated from the operating room by a balustrade and thus view the operations from a point where all danger of the transmission of infections is avoided. The children's beds in the delivery rooms can be heated if desired. The rooms for puerperants have five beds each, and adjoining are the rooms for infants with a like number of beds. In order to prevent infection through visiting friends and relatives, the rooms for infants are separated by a glass partition from the visitors.

On the second floor are the gynecologic department with the sickrooms and the main operating room, in which three operations can be carried on simultaneously. On the third floor are the solarium, which may be used also in winter, and the gymnasium, which is utilized also as an instruction room.

The buildings are not yet entirely completed. The last section of the building, which is now being begun, will provide an inner transformation of the old building and several pavilions, and will doubtless be finished by April 1, 1933. The Universitätsfrauenklinik will have sixteen departments, and the university will then have a well equipped and sufficiently large Frauenklinik, with 250 beds in place of 150 as heretofore, and a clinic that, in a measure at least, does justice to the high scientific importance of the institute. The cost of the reconstruction will doubtless exceed $250,000.

ITALY

(From Our Regular Correspondent)

June 30, 1932.

The Nature of Immunity to Tuberculosis

Dr. Capuani presented recently to the Società di cultura medica Novarese a communication on immunity to tuberculosis. The immunity is demonstrable by evidence based on epidemiology, clinical observation and research. This immunity, which was regarded for a time as of a humoral nature, is no longer so considered owing to the discovery of tuberculous antibodies. The antibodies do not develop a true defense action. But in the organic humors there are other antibodies that do not effect deviation of the complement, although their lytic actions on the Koch bacillus cannot be doubted. The same thing applies to the lipolytic phenomena.

Phagocytosis is the chief cause of the formation of the giant cell and of the reproduction of the micro-organism and hence represents the point of departure of all histogenesis. Tuberculous immunity is, on the whole, not very active, and the results secured are limited. It is, however, advisable to conduct the campaign against tuberculosis in such a manner as to consider tuberculous immunity an important basis for action but without concealing the fact that more certain results can be obtained from prophylaxis. Hence the mode of action that takes advantage of both methods is to be regarded as ideal, since only by their combined influence can the epidemiologic problem of tuberculosis be handled to advantage.

Meeting of Medical Academies

The Accademia medica di Roma met recently under the chairmanship of Prof. Silvestro Baglioni. Calò spoke on the cultivation of embryonal tissues of the chicken and of tumor tissues in the plasma of animals that had been irradiated with roentgen rays. These experiments have shown that in the blood of irradiated animals special substances are present which exert a peculiar action on the growth of artificially cultivated tissues.

Silvestri reported a case of kala-azar in Rome in a man, aged 36. He called attention to the necessity of an early diagnosis, which is possible by means of splenic puncture.

Zagami dealt with the so-called vitamin of fecundity (vitamin E), to which attention has been called by Evans and Bishop.

Galamini administered alcohol and insulin to rabbits intravenously and found the resistance of the animals to the toxic action of the two substances increased.

The Accademia medica di Genova also held a meeting under the chairmanship of Professor Durante. Frola and Prussia spoke on the filtrability of the tuberculous virus. The experimental researches of these authors support the view that no virus is demonstrable, at least with the technic available.

De Martini spoke on the failures of therapeutic pneumothorax in gangrene of the lungs. This treatment is frequently followed by pleural complications that prove fatal.

Duties of Physicians in Penal Institutions

According to the new regulations in penitentiaries, as explained by Dr. De Crecchio to the Accademia delle scienze medico-chirurgiche of Naples, physicians of penal institutions are entrusted with the biologic study of the inmates. They must, above all, see that every inmate is classified and placed in the section that best accords with his antecedents and his history. No disciplinary treatment and no special rewards accorded by law may be applied to inmates without the approval of the physician. In addition to the psychopathic hospitals, the welfare institutions and the houses of correction, also the new institutions for persons with disease must be directed by physicians who have specialized in criminal anthropology. The sanatoriums, preventoriums and homes for convalescents, under military control, will admit the inmates of penal institutions who have tuberculosis.

The Medical Congress of Sicily

The ninth Congresso medico siciliano was held recently at Catania. Professor Muscatello presented a paper on acute conditions of the abdomen. He spoke of the high mortality after operations in acute abdominal conditions and explained it by the delay in resorting to an operation. Long waiting is always harmful; even when the abdominal attack terminates with recovery, it requires a long time. Professor Zurrica spoke on the varied symptomatology of acute abdominal conditions and concluded that the greater part of them are fatal unless there is early surgical intervention.

Professor Di Guglielmo spoke on "The Immunizing Treatment of Tuberculosis." He gave a survey of antituberculosis vaccination, explaining the more recent methods of vaccination and serotherapy, defining the limits of their application.

Professor Sagona considered the importance of the immunizing treatment of tuberculosis. He said that at present the question of Calmette vaccination is being carefully studied by suitable institutions and authorized specialists, although the time has not yet come to extend the use of the vaccine to general practitioners.

Professors Giuffrè, Morelli, Bilancioni, and others, participated in the general discussion.

Anesthesia

Professor Uffreduzzi, of the University of Turin, spoke at the ninth International Congress of Surgery on the subject of anesthesia and narcosis. He said that it is practically impossible, in view of the complexity of the problem, to give an exact opinion concerning the merits, the defects and the indications of the various methods. The indications for narcosis cannot be rigid but must change as the technic develops. The more recent tendency, which the speaker regards as justified, is to restore general anesthesia to its former place. The most perfect local or regional anesthesia does not prevent the psychic trauma and is hence always inferior to general anesthesia. In local anesthesia, muscular relaxation is never complete. Postoperative pneumonia is often observed in local anesthesia, owing to the mental depression to which this method may give rise. The narcosis is influenced by the nature of the disease and the area of the operation, as well as by the mental and physical character of the subject operated on. Chloroform should no longer be used, other than in special cases and with strict limitations. Ether still remains the basis of general anesthesia, as the anesthetic of current use, and especially as an effective method of completing gas anesthesia or local or basal anesthesia. The gases, from the point of view of toxicity, represent the most perfect method that has as yet been devised for anesthesia. When properly employed, they present no danger whatever and permit grave interventions under ideal conditions. Anesthesia with gases has been improved by modern apparatus that permits the simultaneous administration and the exact determination of the dosage of oxygen and of carbon dioxide, the administration of which is useful during and after anesthesia. Uffreduzzi emphasized that hospitals need specially trained assistants for the administration of anesthetics.

The topic was discussed also by Gamberini of Bologna, who considered more particularly ether anesthesia by the rectal route. This form of anesthesia, after a brief period of popularity, has today few supporters, owing to the many contraindications. With regard to rectal anesthesia by means of "avertin," the speaker concluded from his personal experience that it presents numerous advantages, and that while it may produce untoward incidents if it is used in the basal dose, they are never fatal nor more numerous than those that occur with other methods of anesthesia. The fatal complications attributed to "avertin" have occurred from the use of excessive doses, and, taken at the worst, the mortality is no higher than that due to ether.

BUDAPEST

(From Our Regular Correspondent)

Aug. 6, 1932.

The Interruption of Gestation from a Legal Point of View

At a recent meeting of the gynecologic section of the Royal Medical Society, the entire time was devoted to a debate on the subject of the interruption of gestation. The most important paper was by Dr. Balázs Kenyeres, professor of forensic medicine at the University of Budapest.

Paragraph 285 of the Hungarian penal code applies in part to cases in which a physician induces abortion in the interest of the mother on proper indications. Although this operation would not aim to kill the fetus, the act properly constitutes a deed against the life of the fetus. According to present legal conceptions, a uterine fetus is, from conception on, a living being, which has rights and toward which the state has its duties. The civil law may appoint a guardian for it if deemed necessary and put its expectable inheritance under juridical custody. On the same ground the penal law protects the life of a fetus against attacks threatening it, by regarding the induction of abortion as a crime against human life and prosecuting it as manslaughter. There is no difference between a life and life. The killing of a man sentenced to death, that of a dying man, that of an unborn baby, is just as much manslaughter as is the killing of any other man; the law refers to each of them uniformly, and there is no mention in the law that any of these would be allowable to serve other interests.

Of course, it does not follow that every person committing one of the foregoing crimes is punished. In certain cases either the general provision of the law or juridical practice may exempt one from punishment. The criminal is not punished if he commits the crime for averting a direct danger to the life of the mother. Other reasons for killing a fetus are not recognized by juridical practice. It is understood, humanly speaking, that the physician trying to help his fellow out of a desperate situation may even be exonerated; but he cannot claim exemption from the law on such grounds. If such causes insured exoneration, it would lead to incalculable abuses. The medical profession must demand its rights, which juridical practice grants, that, in order to save a pregnant woman's life or health which is endangered, the life of the uterine fetus should be sacrificed, but the demand cannot go further. Whoever commits abortion for other reasons has to answer for it according to law if the guilt is found out. The induction of abortion violates the interest of the medical profession and seriously damages the physician in question. It is a responsibility for a doctor to be the adviser and friend of a family, which entrusts him with the health and lives of its members, but this doesn't imply that he should help them in every way. If the physician assures an unmarried pregnant woman secrecy, or endeavors to help place the child when born, or tries to help her get work, he fulfils his trust; but he goes too far if he undertakes to do forbidden things. The physician who undertakes to induce abortion can never be sure whether it will not have serious consequences to the mother. Even with the most scrupulous technic, puerperal infection may occur causing the death of the woman, and in such a case, even if the operation was done for medical reasons, the charge of manslaughter caused by negligence may follow.

In regard to the indications for the interruption of gestation, all responsibility belongs to the physician. Between the unpunishable interruption of gestation and the crime of abortion the border is indistinct. If physicians do everything in their power to clear up the diagnosis and rigorously stick to the law, that the life of a fetus can be taken only to save the life of the mother, they need not be afraid of the law. But those who intentionally try to cloak with fictitious indications their deeds committed from other motives should not reckon on support from those versed in legal procedure.

Marriages

ALTON BROOKS FREEMAN, Randleman, N. C., to Miss Elizabeth Breeden Townsend of Dunn, July 15.

HENRY HOWARD WHITEHOUSE, New York, to Miss Carolyn Harding Beebe at Mystic, Conn., July 9.

WILLIAM DAVID STRAYHORN, JR., Nashville, Tenn., to Miss Mary Blalock of Jonesboro, Ga., July 2.

WILLIAM EDGAR VADEN to Mrs. Majorie Yearby Hood, both of Chattanooga, Tenn., in July.

DONALD A. MCLANE to Miss Gertrude Marie McKenna, both of Englewood, N. J., July 15.

CHARLES FRANCIS DE GARIS, Baltimore, to Miss Ethel Virginia Price, June 15.

Deaths

Clement Frank Theisen, Albany, N. Y.; Albany Medical College, 1892; member of the Medical Society of the State of New York; member of the American Laryngological Association; formerly clinical professor of laryngology and rhinology at his alma mater; on the staffs of the Child's Hospital, St. Peter's Hospital and the Brady Maternity Hospital; aged 61; died suddenly, July 27, of coronary sclerosis, chronic myocarditis and arteriosclerosis.

Charles Joseph Durand ⊕ Colfax, Calif.: Laval University Faculty of Medicine, Quebec, Que., Canada, 1911; fellow of the American College of Physicians; past president of the Placer County Medical Society; health officer of Colfax; for many years assistant medical director of the Colfax School for the Tuberculous; aged 45; died, July 6, in Sacramento, following an operation for inguinal hernia.

Peter Leo Dorey ⊕ Middlebury, Vt.; University of Vermont College of Medicine, Burlington, 1904; past president of the Addison County Medical Society; on the staffs of the Fanny Allen Hospital, Winooski, Porter Memorial Hospital, Middlebury and the De Goesbriand Hospital, Burlington; aged 56; died, June 17, of cardiorenal arteriosclerosis and pulmonary embolism.

John Leonard Everlof ⊕ Minneapolis; Jefferson Medical College of Philadelphia, 1916; fellow of the American College of Surgeons; served during the World War; associate attending genito-urinary surgeon to the Minneapolis General and Swedish hospitals; aged 43; died, July 12, of chronic glomerulonephritis.

John Edwin McKillop ⊕ Los Angeles; Medical Department of the University of California, San Francisco, 1911; professor of medicine (communicable diseases), College of Medical Evangelists; on the staff of the Los Angeles General Hospital; aged 48; was accidentally drowned, July 25.

Charles Ephraim French ⊕ Lowell, Mass.; University of Maryland School of Medicine, Baltimore, 1893; member of the New England Ophthalmological Society and the New England Otological and Laryngological Society; aged 64; died, July 6, in the Shaw Hospital, of shock following prostatectomy.

Myron Botsford Palmer ⊕ Rochester, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1899; member of the American Roentgen Ray Society; aged 58; died, July 24, in the Strong Memorial Hospital, of appendicitis, intestinal obstruction, paralytic ileus and peritonitis.

John Angus Macdonald, Vancouver, B. C., Canada; L.R.C.P., Edinburgh, Scotland, 1881; Faculty of Medicine of Trinity College, Toronto, 1881; formerly member of the provincial board of health of Manitoba and city health officer of Brandon; aged 69; died, April 28, of pneumonia.

Sidney James Watson, Worthington, Minn.; University of Minnesota Medical School, Minneapolis, 1927; member of the Minnesota State Medical Association; on the staff of the Worthington Clinic Hospital; aged 27; died, in July, of septic sore throat and heart disease.

Haldor Louis Gahm ⊕ Washington, D. C.; Ohio State University College of Medicine, Columbus, 1912; member of the Ohio State Medical Association; served during the World War; aged 45; died, August 2, in U. S. Veterans' Hospital number 32, of carcinoma.

William Palmer P. Kirby, Moncton, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1908; fellow of the American College of Surgeons; aged 50; senior surgeon to the Moncton Hospital, where he died, May 22, of cerebral hemorrhage.

Thomas Jefferson Tribble, Nederland, Texas; Memphis (Tenn.) Hospital Medical College, 1907; member of the State Medical Association of Texas; for many years health officer of Sabine Parish; aged 52; died, May 23, of cardiovascular hypertensive disease.

David Crockett Walt ⊕ Little Rock, Ark.; Memphis (Tenn.) Hospital Medical College, 1884; formerly professor of clinical medicine and associate professor of anatomy, College of Physicians and Surgeons, Little Rock; aged 68; died, July 22, of carcinoma.

W. T. Pace, Smyrna, Ga.; Georgia College of Eclectic Medicine and Surgery, 1887; member of the Medical Association of Georgia; formerly member of the state legislature; aged 69; died, July 26, in a hospital at Marietta, of carcinoma of the prostate.

Charles Eggleston Hooker, Grand Rapids, Mich.; University of Michigan Medical School, Ann Arbor, 1895; member of the Michigan State Medical Society; chief of staff of the Blodgett Hospital; aged 60; died, August 3, of heart disease.

Charles J. Vaughan, Atlanta, Ga.; Atlanta Medical College, 1893; member of the Medical Association of Georgia; aged 75; died, July 21, in the Georgia Baptist Hospital, of uremia resulting from chronic nephritis and prostatic hypertrophy.

David William Howell, Caney, Kan.; Medico-Chirurgical College of Kansas City, Mo., 1902; member of the Kansas Medical Society; past president of Montgomery County Medical Society; aged 66; died, June 17, of cerebral hemorrhage.

Charles Melville Whitney ⊕ Boston; Harvard University Medical School, Boston, 1887; professor of urology, Tufts College Medical School; member of the American Urological Association; aged 69; died, July 30, of heart disease.

Arnold August Scherr, Keyser, W. Va.; College of Physicians and Surgeons, Baltimore, 1903; member of the West Virginia State Medical Association; served during the World War; aged 54; died, May 27, of coronary sclerosis.

Edmund Dozier Hunter, Norfolk, Va.; College of Physicians and Surgeons, Baltimore, 1901; member of the Medical Society of Virginia; aged 60; died, June 28, in a local hospital, of chronic interstitial nephritis.

Isaac N. Freeman, Hot Springs National Park, Ark.: Gate City Medical College, Texarkana, Texas, 1905; member of the Arkansas Medical Society; aged 66; died, June 20, of cerebral hemorrhage.

Clayton Ross Entwistle, Philadelphia; Tufts College Medical School, Boston, 1919; aged 36; on the staff of the Memorial Hospital, where he died, July 18, of subarachnoid hemorrhage.

Robert W. Rowland, Flora, Miss.; Hospital College of Medicine, Louisville, 1877; member of the Mississippi State Medical Association; aged 76; died, in April, of pulmonary tuberculosis.

George W. Scruggs, Humnoke, Ark.; National Normal University College of Medicine, Lebanon, Ohio, 1891; member of the Arkansas Medical Society; aged 63; died, June 21, of paralysis.

Solomon Matthews Dorland, Rodney, Ont., Canada; Faculty of Medicine of Trinity College, Toronto, 1884; aged 84; died, May 29, of carcinoma of the stomach.

William Milton Rose ⊕ Cambridge, Mass.; Tufts College Medical School, Boston, 1903; aged 74; died, March 24, of chronic myocarditis.

John Q. Elmore, Gordon, Neb.: Medical Department, University of Tennessee, Nashville, 1888; aged 81; died, June 8, of heart disease.

Alfred Winthrop Bowman, Arlington, Mass.; Harvard University Medical School, Boston, 1901; aged 53; died, June 7, of heart disease.

H. Coford Johnson ⊕ San Francisco; Medical Department of the University of California, 1908; aged 48; died, July 8, of typhoid.

Giles Benjamin Wood, Burke, Texas; licensed, Texas, under the Act of 1907; aged 71; died, May 12, of atrophy of the liver.

Dana G. Cook, Albion, Mich.; Fort Wayne College of Medicine, 1897; aged 75; died, July 28, of arteriosclerosis.

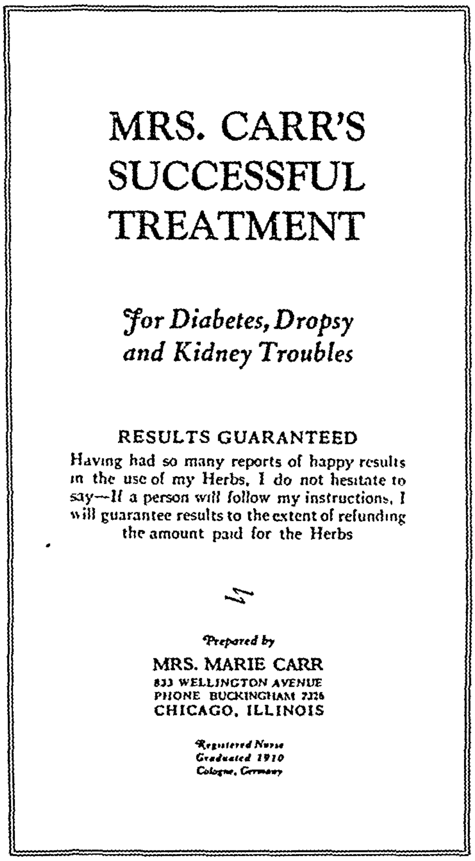
Bureau of Investigation

THE MARIE CARR FRAUD

A Crude Piece of Mail-Order Quackery Barred from the United States Mails

During the past few years, a Chicago woman calling herself "Mrs. Marie Carr" has been selling on the mail-order plan alleged cures for diabetes, Bright's disease, sexual debility, obesity and many other conditions. Marie Carr actually was the maiden name of a Mrs. P. P. La Plant, who was not a physician, pharmacist or a chemist, and employed no one having these qualifications. On her letterheads and in her advertising, she claimed to be a registered nurse who was graduated in 1910 at Cologne, Germany.

In 1928, she was sending out letters addressed to the superintendents of various industrial concerns, urging that these superintendents should distribute her advertising folders, so that any men in the plant who might be suffering from diabetes or Bright's disease might know where they could get relief!



MRS. CARR'S
SUCCESSFUL
TREATMENT

*For Diabetes, Dropsy
and Kidney Troubles*

RESULTS GUARANTEED

Having had so many reports of happy results in the use of my Herbs, I do not hesitate to say—If a person will follow my instructions, I will guarantee results to the extent of refunding the amount paid for the Herbs

Prepared by

MRS. MARIE CARR
833 WELLINGTON AVENUE
PHONE BUCKINGHAM 2326
CHICAGO, ILLINOIS

*Registered Nurse
Graduated 1910
Cologne, Germany*

In February, 1932, Mrs. La Plant was furnished by the Post Office Department with a memorandum of charges and she was called on to show cause by March 22 why a fraud order should not be issued against her. Mrs. La Plant on March 7 wrote to Washington, denying the charges and stating that she was unable to appear in Washington or to employ counsel. She was then given the opportunity of voluntarily abandoning her fraudulent business and was granted an extension of time to March 31 to file an affidavit covering the matter. Following this, Mrs. La Plant engaged a lawyer and, at his request, the date for filing the affidavit was postponed to April 18. By April 26, nothing further had been heard from either Mrs. La Plant or her attorney and the government notified the woman that the matter would be disposed of in the usual manner. That communication was also ignored.

According to the memorandum of Judge Horace J. Donnelly, Solicitor for the Post Office Department, to the Postmaster General, recommending the issuance of a fraud order, Mrs. La Plant's enterprise consisted in the sale through the mails of herb-tea preparations that she claimed would cure or relieve such ailments as diabetes, Bright's disease, sexual debility, obesity, dropsy, jaundice, liver trouble, rheumatism, gallstones, female trouble, asthma, gonorrhea, etc. Mrs. La Plant obtained business by running advertisements in various magazines and periodicals, as well as by sending circulars and other matter through the mails. The advertisements were rather typical of crude "patent medicine" quackery. The story was to the effect that the "monks of old," and also the Indians of many years ago, practiced medicine long before doctors were known; that they would gather leaves, barks, wild berries, and roots, make a tea of them, and produce remarkable cures. Mrs. La Plant then went on to state that she had obtained certain formulas, which had been in use for more than two hundred years, and was importing the herbs, which she combined in the dried and crushed form and in proper proportions. The government found that this woman did not import her herbs at all but purchased them from a concern in Hammond, Ind.

One of the herb teas which was sold as a "cure" for diabetes and Bright's disease was known as "Formula No. 232." Mrs. La Plant, in letters to those supposedly suffering from diabetes, urged them to discontinue the use of insulin when they began using her herbs. Microanalysts for the government reported that Mrs. La Plant's No. 232 consisted of a mixture of sassafras bark, marshmallow root, couch grass, juniper berries and round dock. Judge Donnelly pointed out in his memorandum to the Postmaster General that diabetes and Bright's disease are two totally different diseases and call for different treatment.

The herbs for sexual debility and, incidentally, for "night sweats," were called by Mrs. La Plant "Formula No. 114." This was said to restore "lost manhood." The government microanalysts found that No. 114 contained fennel seed, bearberry leaves, gentian root, red clover flowers, round dock, mullein leaves and sage leaves. It was shown at the hearing that such a combination would have no other effect than that of a diuretic and bitters and contained nothing that could prove curative or beneficial to those suffering from sexual debility.

The obesity treatment, known as "Formula No. 56," was found to contain bladderwrack, horsetail, celery seed, pumpkin seed, sassafras bark, and angelica root. As with most quack "obesity cures," when the victim had paid for the medicine and received the package, he was told that it was necessary to omit from the diet a number of foods, and was also told to take certain exercises.

In view of the obvious fraudulence of the scheme, the Solicitor's memorandum recommended that the Postmaster General issue a fraud order. It was issued on May 31, 1932.

WACK'S GALLBLADDER CAPSULES

Norman A. Wack, a druggist of Wayne, Pa., puts out a preparation called "Gallbladder Capsules" that are sold on the mail-order plan. Because of the inquiries received, an original package of the Gallbladder Capsules was purchased direct from Norman A. Wack and was submitted by the Bureau of Investigation to the A. M. A. Chemical Laboratory for investigation. The package contained 104 capsules (pink in color) filled with colorless, odorless crystals having a slight saline taste. The Laboratory reported that the contents of the capsules varied in weight about 24 per cent, the average being about 6¼ grains. No information was given as to their composition.

On examination, the A. M. A. Chemical Laboratory reported in part as follows:

> "Qualitative tests indicated the presence of sodium and an organic acid, indicative of succinic. Alkaloids, halides, sulphates and heavy metals were not found. On heating the product in an electric oven at 100 C. for six hours, it lost 40 per cent in weight; and on further heating, it remained constant. This is characteristic of sodium succinate hydrated. The amount of 'sulphated' ash obtained was 85.9 per cent, which is equivalent to 27.8 per cent calculated as sodium. These figures also agree with those for sodium succinate hydrous. In addition, a specimen

of Wack's Gallbladder Capsules was sent to a petrographer for comparison by optical methods with a known specimen of pure sodium succinate (hydrous). The petrographer reported that the two substances were found to be identical.

"From the foregoing, it was concluded that the contents of Wack's Gallbladder Capsules were essentially sodium succinate."

From the chemists' report, it appears, therefore, that Mr. Wack was dispensing about 700 grains of sodium succinate in crudely filled capsules. For this he charged $3. Sodium succinate can be purchased at $1.37 a pound. This means that twenty cents would be a liberal estimate of the actual cost of the material for which Mr. Wack charges the public $3. While, in the past, sodium succinate has been held by some to have value in the treatment of cholecystitis, there has never been developed any scientific evidence to support the claim.

Correspondence

THE OSCILLOMETRIC INDEX PROXIMAL TO VASCULAR OCCLUSION

To the Editor:—In reviewing oscillometric curves taken at various levels in cases of thrombo-angiitis obliterans as well as in cases of peripheral thromboses and emboli, and comparing these readings at corresponding levels in the unaffected limb, an interesting observation was made. It was noted that the oscillometric index at the point just proximal to the point of occlusion was definitely and consistently larger than the index at the same level in the unaffected limb. This did not hold true when the obstructive lesion was sclerotic in character.

An explanation of this phenomenon is seen when one reviews the hydrodynamics of the peripheral circulation, so well described by Dr. W. Wayne Babcock (*Am. J. Surg.* **16**: 401 [June] 1932). When the velocity of the blood flow is increased, the wall pressure decreases. With occlusion of the vessel, the blood flow velocity is decreased to zero and therefore the wall pressure is definitely increased.

This small point is of great value in the differential diagnosis of peripheral vascular disease, for in cases of spastic vascular occlusion the oscillometric index is lower proximal to the lesion, compared with the unaffected limb, than it is in the arteriosclerotic type of vascular occlusion.

William C. Beck, M.D., Sayre, Pa.
From the Guthrie Clinic.

REACTION AFTER INJECTION OF NUPERCAINE

To the Editor:—A woman, aged 55, applied for treatment of piles, usually taken care of by local anesthesia, submucous infiltration and removal either by excision or by surgical diathermy. The patient, who was in general good health, weight about 125 pounds (57 Kg.), and of nervous temperament, was prepared in the usual way, and 1 per cent nupercaine, freshly made, was injected subcutaneously and submucous to the local pile area in the amount of 5, but not more than 6, cc. A reaction of dizziness and nausea set in before any other procedure began, followed by vomiting and loss of bladder and rectal control and unconsciousness. This occurred at about 8 o'clock and this state prevailed until 3 a. m., when a rational state began. The following day the patient complained of dizziness and nausea. There were signs of decreased reflexes. The pupils were dilated. The pulse was 64 and the patient was pale. During the acute stage there was a primary flushing of the skin surfaces, the pulse was rapid and thready, the pupils were dilated, and this condition was succeeded by marked pallor, profuse prespiration, and a pulse of 60, small of volume. The patient states that years ago she noticed ringing in the ears with use of quinine.

V. W. Jensen, M.D., Shelby, Mich.

SIMULTANEOUS HOMOLOGOUS DISLOCATION OF HIP IN TWO PATIENTS

To the Editor:—Dislocations of the hip are uncommon injuries and, according to Wilson and Cochrane, form only about 2 per cent of all dislocations. A hip dislocation, however, is not in itself a notable occurrence. To have a man of 37 and a girl of 25 riding in a light coupé strike a tree and both receive a posterior dislocation of the right hip must surely be rare.

The couple left a camp to drive to town in a somewhat intoxicated state and on a sharp turn of a narrow road the car veered to the right, striking a tree between the right fender and hood. The car was demolished. Both were brought to the hospital semiconscious, with multiple scalp wounds. The man had also several broken ribs. Both presented a classic flexion and adduction deformity of the right thigh, and both showed a posterior hip dislocation without fracture in the x-ray films. Both dislocations were easily reduced. The patients were placed on the floor and the thigh and knee sharply flexed, strong upward traction being made on the thigh, with counterpressure on the pelvis. Both patients have made uneventful recoveries from their hip injuries.

R. J. White, M.D., Fort Worth, Texas.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIARRHEA IN CHILDREN

To the Editor:—A child of 13 months, in good vigorous health, two and a half months ago developed an acute diarrhea apparently rather mild in character. The rectal temperature rose to 101 F. Recovery occurred with simple treatment in one week. A recurrence in about five days followed the apparent recovery. The recurrence seemed identical to the first attack. The stools were watery and green, and they contained mucus and curds. Only weak tea and water were given for twenty-four hours, with marked improvement. Then boiled skimmed milk and water in equal parts, cottage cheese, jello and plain toast were added, followed gradually by the farinaceous foods, buttermilk, custard puddings and tomato juice. A formula of boiled skimmed milk and protein milk, mixed together, was used; later, vegetable water, and sieved banana in small quantities. The stools have continued at five or six a day for the last six weeks, containing mucus and a few pus cells positive for occult blood. Macroscopic blood was observed in only two stools. The Welch bacillus was isolated from the stool. The child plays and seems quite happy; the general condition is excellent. The only drug treatment has been the recent use of kaolin for a few days at a time, alternating with tincture of iodine for a like period. Are there any suggestions for treatment at this time? Is this likely to become a case of chronic ulcerative colitis? Please omit name.

M.D., California.

Answer.—A subacute or chronic diarrhea occasionally follows an acute attack in children under 2 years of age. This is usually more in the nature of a catarrhal enteritis and only rarely develops into chronic ulcerative colitis. Occult blood, mucus and occasional pus cells, as in this case, may be present in the stools in a simple catarrhal enteritis or colitis without gross or macroscopic ulceration. Although the excellent general condition and happy disposition of the child virtually rules out any serious type of infection, the stools should be carefully examined and cultures should be taken for dysentery, amebic and bacillary, the typhoid groups and the ova of intestinal parasites. Tuberculous enteritis can easily be excluded by a negative tuberculin skin test.

In the treatment the diet should not be restricted too severely and the caloric intake should be enough to insure proper gain of weight. Generally speaking the diet should be low in fat content (cream and butter sparingly), high in protein (scraped meat, cottage cheese, beef juice, gelatin, eggs), bland without roughage (all vegetables puréed and those that seem to aggravate the diarrhea eliminated entirely), no fruits except orange juice, scraped raw apple and mashed ripe banana. Mashed banana is an excellent starchy food in these cases of diarrhea and should be given as a substitute for cereal early. Later the finer cereals, as farina and cream of wheat, may be added. Oatmeal and wheatena are to be avoided because of their increased laxative properties. Lactic acid milk, at first skimmed and later whole, should be tried, or protein milk. If the child refuses the sour milks, boiled skim milk with casein added may be used.

Regarding medication, if a mixture of camphorated tincture of opium, 0.6 cc., and bismuth subcarbonate, 0.6 Gm., four times daily does not control the diarrhea, a tannic acid-proteinate such as albumin tannate, 0.3 Gm., three times daily, often proves efficacious.

CAUSTIC ACTION OF PAINT REMOVER

To the Editor:—I am very anxious to learn, if possible, the ingredients which go to make up a paint remover marketed under the name of "Lucas (semipaste) Mirac Varnish and Paint Remover," manufactured by John Lucas & Co., Inc., Philadelphia, New York, Chicago, Boston, Pittsburgh and Oakland, Calif. A present patient of mine had some of this material splashed into his eyes about two years ago and a medicolegal question arises as to whether any of the ingredients in the paint remover were caustic in their action on tissues.

Nelson M. Black, M.D., Miami, Fla.

Answer.—The term "caustic" is definable in so many ways that it is appropriate to regard all chemical paint removers as containing constituents that exert caustic action on tissues of the eye. This assumes that caustics are defined as substances capable of destructive action on living cells. If, however, caustics are regarded as corrosives or escharotics, it is unlikely that the semipaste types of paint remover will contain caustics.

Lucas Mirac Varnish and Paint Remover is believed to be similar to that made by many other paint manufacturers operating under the Chadeloid patents. The formulas are not constant. They may contain benzene, benzine, amyl acetate, ethyl acetate, acetone, propyl alcohol, methyl alcohol (wood alcohol), carbon bisulphide, paraffin, soaps, beeswax or petrolatum. A typical formula is benzine 200 parts, denatured alcohol or wood alcohol 200 parts, acetone 50 parts, paraffin 25 parts, alkali soaps 25 parts, carbon bisulphide 25 parts, amyl or ethyl acetate 5 parts, and beeswax 5 parts. The paraffin, beeswax, petrolatum and soaps are used to produce the jell or semipaste consistency.

Several of the substances mentioned are capable of inducing injuries to the eyes. If optic atrophy is present, investigation should include the possibility of damage arising after the inhalation of wood alcohol or carbon bisulphide vapors over an extensive period. This form of damage is to be regarded as an occupational disease rather than as an accidental injury.

SENSITIVITY TO CINCHONA DERIVATIVES

To the Editor:—A patient with paroxysmal auricular fibrillation has been controlled with quinidine for about two years. Lately, however, the taking of a small dose by mouth (he uses capsules) causes intense nausea and faintness with a still successful result in timing the rhythm. He has evidently developed an idiosyncrasy. 1. Would all the related cinchona derivatives cause the same toxic symptoms? 2. Is there any other method of administration (parenteral) for quinidine or suitable substitute? 3. Are toxic symptoms due to direct gastric irritation or are they due to effect on venous structures after absorption?

Lawrence S. Ward, M.D., Bronx, N. Y.

Answer.—1. Among the recognized untoward effects of quinidine is nausea, even vomiting, with faintness and dizziness. The other cinchona derivatives act qualitatively alike but differ quantitatively, so that quinine may possibly be tolerated with benefit.

2. The quinidine acid hydrochloride, soluble in 4 parts of water, might be used intramuscularly in doses of 0.3 Gm. in 2 cc. of water, or intravenously in 5 cc. of water.

3. The nausea may be due to stimulation of the vomiting center.

LATE SYPHILIS OF CENTRAL NERVOUS SYSTEM

To the Editor:—This inquiry concerns late cases of syphilis with definite brain and spinal cord involvement, such as are found in mental institutions, and refers to the recognized or authoritative opinion on treatment of cases other than with malaria. Am I wrong in the opinion that neurologists and psychiatrists generally do not consider arsenicals, bismuth preparations, or mercurials of much value? And is the same opinion held by syphilologists generally? Might more harm than benefit result from the fibrolytic action of potassium iodide, given either continuously or interruptedly, about ninety drops of saturated solution a day? Please omit name.

M.D., Pennsylvania.

Answer.—It is difficult to say just what a neurologist and psychiatrist in general considers as adequate treatment for late cases of syphilis of the brain and spinal cord. Opinions vary, and the views on the whole subject are undergoing constant change. Psychiatrists and neurologists divide syphilis of the central nervous system into mesoblastic and parenchymatous types. Some of the forms of mesoblastic types are syphilitic endarteritis, meningitis and multiple small gummas. The parenchymatous types are classified as dementia paralytica, tabes, and dementia paralytica with tabes.

There is probably no disagreement between neurologists and psychiatrists on the one hand, and syphilologists on the other, that all cases of mesoblastic syphilis of the nervous system should be treated with mercury preparations, bismuth compounds, arsphenamine or one of its substitutes, and potassium iodide. The usual dose of the last named drug is from fifteen to fifty drops of a saturated solution three times a day. This drug reduces the antitryptic index of the blood and probably produces some fibrolytic action. If it is pushed too much in cases of endarteritic cerebrospinal syphilis, cerebral hemorrhages have been known to result. If a patient suffering from mesoblastic syphilis of the central nervous system does not respond to these forms of treatment, psychiatrists, neurologists and syphilologists are inclined to substitute tryparsamide in place of arsphenamine; yet some have a distinct dislike for this drug because of its well known action on the optic nerve. It often produces transitory toxic amblyopias, and even occasional blindness has resulted from its use.

In treating parenchymatous syphilis of the central nervous system, modern psychiatrists and neurologists are generally convinced that treatment with anything less than bismuth or mercury compounds, potassium iodide and tryparsamide is useless. Syphilologists have a tendency to cling to the same treatment in these forms as has been described as the treatment for mesoblastic syphilis of the central nervous system.

The most modern treatment for dementia paralytica and dementia paralytica with tabes is undoubtedly some form of fever therapy.

BURNS WITH HYDROFLUORIC ACID

To the Editor:—Last November a patient came to me complaining of a burn the size of a quarter on the anterior surface of the right forearm, the result of having dropped a small amount of hydrofluoric acid on her arm. It required six weeks to heal the wound, and the patient complained of severe burning pain throughout the treatment and some time afterward. Yesterday the patient returned complaining of pain, tenderness and a burning sensation involving the skin over the terminal phalanges of the fingers of the right hand. The involved areas are red, hot and apparently very tender. The finger nails are raised and seem to be loose. The nails on the other hand are normal. Except for the condition of the nails, one would guess that the patient had a first degree burn of the fingers. She has not worked with hydrofluoric acid since November, and she states that she has not injured her fingers in any way. She feels that the present condition is secondary to the original burn. Could this be possible? What in your opinion is the cause of the present condition and what treatment would you recommend? What is the best method for treating hydrofluoric acid burns? Please omit name and town.

M.D., West Virginia.

Answer.—There is no special treatment for a burn caused by hydrofluoric acid—that is, after the burn has really occurred. The condition of the hand, fingers and finger nails, suggests the possibility of malingering. The latter should be carefully excluded. It should also be definitely ascertained whether the patient's hand is coming in contact with any chemicals to which the skin has become sensitized, thereby producing dermatitis venenata. In the meantime, proper treatment would seem to be soothing agents, such as calamine lotion in the day time and zinc oxide ointment at night.

BENZENE POISONING

To the Editor:—My attention was recently called to a postmortem case. A man, aged 36, had worked for a year in a rubber plant where he came in contact with benzene (benzol), a form of naphthol, constantly. When he accepted the position he was in the best of health, having formerly been a blacksmith. He gradually became weak and very anemic, and arthritis developed in the knees and ankles, with some synovitis. The postmortem examination disclosed subacute yellow atrophy of the liver with regeneration. The contributory cause was confluent hemorrhagic bronchopneumonia. Are there many cases like this? Where can I get literature on the subject? Please omit name.

M.D., California.

Answer.—Benzene (benzol) is not a form of naphthol. The postmortem appearances as well as the clinical state mentioned are reasonable results of the action of benzene. Hemorrhage is a characteristic feature of chronic benzene poisoning.

In the final report of the "Benzol" (benzene) Committee (Final Report of the Committee on Benzol [Chemical and Rubber Sections], National Safety Council, Chicago, May, 1926) may be noted many cases similar in some respects to the one in this query. In a publication by McCord (Benzol [Benzene] Poisoning: A New Investigation of the Toxicity of Benzene and Benzene Impurities, ed. 2, Industrial Health Conservancy Laboratories, Cincinnati, 1932) may be found an extensive literature citation to all aspects of benzene poisoning. Hemorrhage, hemorrhagic pneumonia and liver damage after benzene poisoning are discussed in these cited publications. A few diseases unrelated to industry may produce the conditions mentioned in the query. In the main, these are the result of blood dyscrasias of bacterial origin.

EFFECTS OF INDUSTRIAL POISONS AND IRRITANTS ON LUNG

To the Editor:—A man, aged 33, in normal health to December, 1931, had a cold and cough which did not clear up. The first physician consulted made a diagnosis of bronchitis. No improvement resulting after treatment for a month, a second physician was seen, who called it asthma. The patient's condition became worse and a third physician, after a roentgen examination, told him he had acute miliary tuberculosis. Two other roentgenologists have seen the films and both agreed that it was not tuberculosis. One favored silicosis, the other thought it might be a fungous infection. The patient has paroxysms of coughing, which are worse in the early morning. He raises from 4 to 6 ounces of thick tenacious sputum in twenty-four hours. Some days there will be a considerable amount of blood in it; other days, little or none. Respiration is about 30, asthmatic and abdominal in type. The patient cannot breathe lying down and sleeps sitting in a chair. Dyspnea is more marked toward night and in damp weather. The temperature has not been above normal. Ten specimens of sputum have been negative for tuberculosis. The leukocyte count was about 9,000. The Wassermann reaction has been taken but no report has been made. The patient's normal weight is about 150 pounds (68 Kg.). He had lost about 15 pounds up to a month ago and there has been no change since. On one side of his neck just above the clavicle there are two enlarged glands, each about the size of a small acorn. There is one on the opposite side in the same location. There are no enlarged axillary glands. One epitrochlear and a few inguinal glands were palpable. The chest showed loud, moist râles, more profuse over the upper half. There are areas where the expiratory sound is prolonged. Resonance does not seem abnormal. The important points in the past history are in the patient's occupation. For two years, about eight or ten years ago, he worked around a stone crusher. For the last eight years he has been exposed a great deal to the fumes of gasoline while cleaning out tank cars. Will you discuss the differential diagnosis and treatment? Also the effect on the lungs of long continued exposure to the fumes of gasoline. Please omit name.

M.D., Maine.

ANSWER.—The cause of the clinical picture here presented probably is no single agent, such as naphtha or silica, and is instead to be found in the combination of several, acting in complex fashion.

Work for two years, ten years ago, about a stone crusher, without intervening symptoms, still permits of the assumption of the formation of an abnormal amount of fibrous tissue. This rock dust is important in proportion to the amount of free silica present and to the amount of dust actually taken into the lungs during the two years. Two years is a relatively short exposure in connection with the expectancy of silicosis production. However, any degree of silicosis then inaugurated may be expected to progress (Britton, J. A., and Head, J. R.: Pneumonoconiosis: The Delayed Development of Symptoms, THE JOURNAL, June 6, 1931, p. 1938). The radiographic observations in silicosis are essentially characteristic. With reference to the conditions found in early cases, the American Public Health Association's committee on silicosis said: "The earliest specific indication of the presence of silicosis is the radiographic appearance, consisting of generalized arborization throughout both lung fields with more or less small, discrete mottling. This characteristic mottling is due to shadows cast by the discrete individual nodules of fibrous tissue in the lungs, and is essential to the diagnosis of silicosis during life." A further advanced silicosis may present fusion of many nodules, but some discrete ones will remain. This roentgenographic feature may in this case determine the part played by silicosis.

Gasoline vapors are definitely toxic, and the cleaning of tank cars is one of the most promising opportunities for exposure, unless workers are provided with hose masks with air pumped in from outside the tank car. The manifestations do not well suggest naphtha (gasoline) poisoning. Commoner developments are "naphtha jags," in which, as an acute result of naphtha intake, the worker acts in a manner closely simulating alcoholic intoxication. In other instances the worker may develop acute or chronic dermatitis. Others present acute inflammation of the respiratory tract, with chief involvement in the upper portion. Long sustained exposure may induce a chronic process with associated bronchiectasis. Bronchiectasis is undoubtedly present in this case. True, chronic naphtha poisoning is more likely to involve the central nervous system, leading to a clinical picture simulating multiple sclerosis. A hepatitis may coexist. Without some of the aforementioned, naphtha may not be rightfully associated as a major factor in the present case. An exception may reside in the fact that naphtha may so injure the tissues of the body as to form what loosely may be termed a "naphtha proteinate." By this the body may be sensitized and, theoretically at any rate, much of the patient's condition may be accounted for on this presumption. A skin patch test with naphtha may establish sensitivity.

A primary infection by fungi, leading to a bronchomycosis, provides a tenable explanation of this case. The characteristics and differentiation of such an entity have been presented by Edward Steinfield (Bronchomycosis Associated with Certain Types of Bronchial Asthma, THE JOURNAL, Jan. 12, 1924, p. 83) and by W. D. Stovall and H. P. Greeley (Bronchomycosis, THE JOURNAL, Nov. 3, 1928, p. 1346). An allergic state due to a mycotic infection in another portion of the body, such as the feet, may be regarded as a further reasonable possibility.

Treatment for this condition naturally will depend on the making of a more nearly exact diagnosis than appears to exist now. Both for diagnosis and for treatment, much may be gained by washing the lung, followed by injections of iodized oil.

ACETARSONE (STOVARSOL) IN AMEBIASIS

To the Editor:—I have received a circular from Merck & Company recommending the use of stovarsol in amebiasis. Will you please comment on the value of such medication? Please omit name.

M D, California.

ANSWER.—Acetarsone ("Stovarsol"), acetylaminohydroxyphenylarsonic acid, containing from 27.1 to 27.4 per cent of arsenic (N. N. R.), was first synthesized by Ehrlich and later in 1921 by Tréufouel and Fourneau. Reports have appeared on the favorable use of the drug in amebiasis, but they are conflicting as to its therapeutic efficiency and toxicity. Experimentally, Anderson and Leake (*Proc. Soc. Exper. Biol. & Med.* **27:**267 [Jan.] 1930) showed that acetarsone is approximately four times as toxic as originally noted by Levaditi, when administered orally to rabbits and cats. Clinical cases of poisoning are not uncommon, even when therapeutic amounts of the drug are used (Michael, J. C.: THE JOURNAL, Feb. 23, 1929, p. 645. Bender: *Am. J. M. Sc.* **174:**819 [Dec.] 1927). New and Nonofficial Remedies (1931) states that "the physician should remember that he is working with a rather toxic arsenical preparation, which may give rise to gastro-intestinal symptoms, as well as to the same cutaneous disturbances that are found with the arsphenamines, for example, urticaria, erythema of various types and even hemorrhagic eruptions. At the least sign of intolerance the physician should discontinue the use of the drug for the time being." The recommended total adult dosage is 5 Gm. given orally over a seven to ten day period.

There seems to be no doubt that other amebacides, arsenical and nonarsenical, are available which have equal and greater amebacidal action and are less toxic than acetarsone.

ARGYROSIS OF EYELID

To the Editor:—Kindly give treatment for argyrosis of the lower lid, caused by the injection of a silver solution into the tissue fifteen or eighteen years ago. Please omit name.

M.D., Washington.

ANSWER.—Stillians and Lawless (*Arch. Dermat. & Syph.* **17:**153 [Feb.] 1928) described a method for the removal of the bluish discoloration of argyria. A mixture containing 0.25 per cent potassium ferrocyanide and 6 per cent sodium thiosulphate is injected intracutaneously into the area of argyria. This produces a wheal, followed by an erythema. The latter subsides within a few days, leaving a clear area slightly smaller than the wheal produced by the injection. A platinum needle should be employed, and the two chemicals should not be combined until just before using.

PAIN IN SCAR AFTER OPERATION

To the Editor:—I have a patient who had a cholecystectomy performed about three months ago; she has complained since the operation of a constant burning pain in the upper two inches of the incision; the scar has a beefy red color, and the pain extends about three inches to the right of the upper end of the scar; the area is very tender and clothing seems to irritate it. Movement of the right arm seems to increase the pain. Please advise as to diagnosis and treatment. Please omit name.

M.D., Missouri.

ANSWER.—The type of scar described occasionally occurs in wounds that have been drained and in patients in whom there is a tendency to keloid formation. In either event, the excess of scar tissue is probably a factor. Sensitiveness or tenderness and paresthesias in such scars usually subside within a few weeks. In some instances in which such discomfort has persisted without obvious reasons, neurologists have been inclined to diagnose the cause as mental and to treat it accordingly. Fixation of a layer or two of gauze to prevent contact with the clothing may be tried Such local remedial measures as the application of heat and light massage are of value Occasional injection of a small amount of 0 5 per cent procaine hydrochloride solution has been used with benefit Actual keloid should be irradiated

TREATMENT OF SEVERE OBESITY

To the Editor —I have a patient aged 37 years, weighing 470 pounds (213 Kg), blood pressure 110 systolic and 70 diastolic, blood Wassermann negative, who has been gaining weight from 180 pounds (81 6 Kg) to the present weight from about six years ago The patient has been taking large doses of thyroid with 2 grains (0 13 Gm) of ovarian substance every day for the past three years and has continued to gain weight I am particularly anxious to have information concerning intravenous and intramuscular injections in a case of this type

Paul B Shuey, M D, Long Island City, N Y

Answer —In the question, not a word is said about the diet Unless the patient is willing to diet and diet strenuously, no amount of any endocrine substances will reduce the weight No one has ever shown that thyroid works better given with a needle than it does when given by mouth Ovarian extract is generally held to be efficacious only if given hypodermically, but it is doubted that it would have any effect on the obesity Certainly emphasis must be placed on a subcaloric diet

PRESCRIPTION OF IRON AND AMMONIUM CITRATE

To the Editor —Literature at my command does not give me adequate information on the best method of administering iron citrate or iron and ammonium citrate Is the large dose advised? I would like this information for dispensing rather than for prescribing

A L Brankami, M D, Banning, Calif

Answer —Iron and ammonium citrate is readily soluble and may be pleasantly administered in liquid dosage form dissolved in the aqueous elixir of glycyrrhiza, N F, as in the following prescription

	Gm or Cc
℞ *Iron and ammonium citrate*	10
Aqueous elixir of glycyrrhiza	120

M Label Teaspoonful in water three times a day after meals

A teaspoonful of this preparation contains approximately 0 3 Gm of the iron salt The large dose, about 1 Gm, which is probably more efficient, would be secured by giving a tablespoonful of this solution

Iron citrate, which is rather insoluble, could be administered in capsule form

MYCOSIS FUNGOIDES

To the Editor —A man, aged 53, was injured by a crushing blow in the pelvic region For some time he complained of pain in this region, and some months later an eruption began at the site of the lesion and gradually spread over the body The diagnosis was mycosis fungoides Would it be possible for the injury to be the exciting cause of the mycosis?

Robert J Sagerson, M D, Johnstown, Pa

Answer —It is conceivable that the lowering of resistance due to injury might precipitate mycosis fungoides There is one reference to such an occurrence

McNeil, Murray and Atkinson *Glasgow Hosp Rep* 1 53, 1898

NUTRITIVE EFFECTS OF NEAR BEER

To the Editor —Is it possible to derive the same nutritive properties as to vitamin and caloric content from near beer as from alcoholic beer? What do you think of moderate quantities of beer as a fattening agent? Please omit name

M D, California

Answer —The vitamin properties of beer are contained in the yeast and yeast derivatives These are present in near beer as well as in alcoholic beer The use of beer, even in moderate quantities, may promote a gain in weight

MORPHINE IN OPERATIONS ON RESPIRATORY TRACT

To the Editor —Is morphine sulphate contraindicated in tracheal or laryngeal operations under general anesthesia?

P J Cradey, M D, Chicago

Answer —Owing to the fact that morphine depresses the respiratory centers, many laryngologists do not employ it in case of tracheal or laryngeal operations under general anesthesia In many of these cases there is already a potential if not an actual anesthesia, so that the use of morphine would simply be adding another hindrance to the operation

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board for Ophthalmic Examinations Montreal, Sept 19 Sec, *Dr William H Wilder, 122 S Michigan Ave*, Chicago

American Board of Obstetrics and Gynecology The examination will be held in nineteen different cities in the United States and Canada, Oct 22 Sec, Dr *Paul Titus 1015 Highland Bldg*, Pittsburgh

American Board of Otolaryngology Montreal, Sept 17 Sec, Dr W P Wherry, 1500 Medical Arts Bldg, Omaha

Arizona *Phoenix*, Oct 3 Acting Sec, Dr Jos M Greer, Professional Bldg Phoenix

California *Reciprocity* Los Angeles and San Francisco Sept 21 *Regular* Sacramento Oct *17 20* Sec, *Dr* Charles B Pinkham, 420 State Office Bldg Sacramento

Colorado Denver, Oct 4 Sec, Dr William Whitridge Williams, *422 State Office Bldg*, Denver

Connecticut *Basic Science* New Haven, Oct 8 Prerequisite to license examination Address, State Board of Healing Arts, 1895 Yale Station New Haven

Idaho Boise, Oct 4 Dir, Bureau of License, Mr F L Cruikshank, Boise

Illinois Chicago, Oct 18 20 Supt of Registration, Mr Paul B Johnson, Springfield

Michigan Lansing, Oct 11 13 Sec, Dr Nelson McLaughlin, 1010 Maccabee Bldg, Detroit

Minnesota *Basic Science* Minneapolis, Oct 4 5 Sec, Dr J Charnley McKinley 126 Millard Hall, University of Minnesota Minneapolis *Regular* Minneapolis Oct 18 20 Sec, Dr E J Engberg, 524 Lowry Medical Arts Bldg, St Paul

Montana Helena, Oct 4 Sec, Dr S A Cooney, Power Block, Helena

National Board of Medical Examiners The examinations in Parts I and II will be held at all centers where there are five or more candidates available in a Class A medical school Sept 14 16 Ex Sec, Mr Everett S Elwood 225 S 15th St, Philadelphia

Nebraska *Basic Science* Lincoln, Oct 4 5 Dir, Bureau of Examining Boards Mrs Clark Perkins State House, Lincoln

New Hampshire Concord, Sept 8 9 Sec, Dr Charles Duncan, Concord

New Jersey Trenton, Oct 18 19 Sec, Dr James J McGuire, 1101 Trenton Trust Bldg Trenton

New Mexico Santa Fe, *Oct 10 11* Sec, Dr *P G Cornish Jr*, 221 W Central Ave, Albuquerque

New York Albany, Buffalo, New York and Syracuse, Sept 19 22 Chief *Professional Examinations* Bureau, Mr Herbert J Hamilton, 315 State Education Bldg, Albany

Oklahoma Oklahoma City, Sept 13 14 Sec, Dr J M Byrum, Shawnee

Tennessee *Memphis, Sept 29 30* Sec, Dr *Alfred B* DeLoach, Medical Arts Bldg, Memphis

Wisconsin *Reciprocity* Milwaukee, Sept 13 Sec, Dr Robert E Flynn 315 State Bank Bldg, LaCrosse

Wyoming Cheyenne, Oct 3 Sec, Dr W H Hassed, Capitol Bldg, Cheyenne

Massachusetts March Report

Dr Stephen Rushmore, secretary, Massachusetts Board of Registration in Medicine, reports the oral and written examination held at Boston, March 8 10, 1932 The examination covered 17 subjects and included 64 questions An average of 75 per cent was required to pass Ninety-nine candidates were examined, 44 of whom passed and 55 failed The following colleges were represented

College	PASSED	Year Grad	Per Cent
Yale University School of Medicine	(1917) 83 7,	(1928)	76 3
Johns Hopkins University School of Medicine		(1924)	84
Boston University School of Medicine		(1929)	80 8, (1931) 75 75 6, 75 9, 79 6
College of Phys and Surgs Boston	(1926) 75,	(1931)	75 5
Harvard University Medical School		(1929)	79 4, 82 5, (1930) 81 5 84 7
Middlesex College of Medicine and Surgery, Boston		(1929)	75 2, (1930) 76 9, 77 7, 84 6
Tufts College Medical School		(1924)	75, (1930) 75 7, 76 6 81 5 82 2 (1931) 78 4, 81 7, 83 9
University of Michigan Medical School		*(1926)*	82 8
Columbia University College of Physicians and Surgeons	(1904) 86,	(1926)	82 9
Cornell University Medical College		(1929)	82 2
University of Buffalo School of Medicine		(1928)	75
Hahnemann Medical Coll and Hosp of Philadelphia		(1931)	75 9
University of Pittsburgh School of Medicine		(1911)	75
University of Tennessee College of Medicine		(1930)	76 6
University of Vermont College of Med	(1904) 75,	(1926)	84 4
University of Toronto Faculty of Medicine		(1923)	78 1
McGill University Faculty of Medicine		(1930)	82 5
University of Rome Faculty of Medicine and Surgery		(1924)*	77 3
Osteopaths	75, 75 1,	75 2, 76 2,	77 8

College	FAILED	Year Grad	Per Cent
Boston University School of Medicine		(1931)	59 7
College of Physicians and Surgeons Boston		(1931)	66 2, 67 7
Middlesex College of Medicine and Surgery, Boston		(1926)	66, 66 4, (1927) 73 4 (1928) 54, 65 2, (1929) 45 4, 58 4, 61, 64 2, 65 4, 68 5, 69 5, 70 2, 72 1, (1930) 67 8, 71 1, 72 1

Tufts College Medical School	(1928)	60.5
Kansas City University of Phys. and Surgs., Mo.	(1927)	46.8, (1929) 57.9, 65.6, 72.6, (1930) 65.5, 67.7, 72, (1931) 71, (1932) 69.9
St. Louis College of Physicians and Surgeons	(1920)	34.8, (1923) 48.8
Medical College of the State of South Carolina	(1925)	69.4
Laval University Faculty of Medicine	(1930)	73.4
German Univ. of Prague Faculty of Medicine, Cze.	(1924)	68.3
Osteopaths		52.6, 52.8, 53.5, 53.8, 55, 57.7, 58, 61, 63.2, 63.5, 65.2, 65.4, 67.1, 68, 68.2, 72.7, 73, 74.2, 74.5, 74.5

Dr. Rushmore also reports 20 physicians licensed by endorsement from Jan. 11 to May 16, 1932. The following colleges were represented:

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine	(1929, 2)	N. B. M. Ex.
Boston University School of Medicine	(1927)	N. B. M. Ex.
Harvard University Medical School	(1929, 2), (1930, 6)	N. B. M. Ex.
Tufts College Medical School	(1928, 2), (1929), (1930, 4)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1919)	N. B. M. Ex.
University of Vermont College of Medicine	(1927)	N. B. M. Ex.

* Verification of graduation in process.

California Reciprocity Report

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports 19 physicians licensed by reciprocity with other states and 1 physician licensed by endorsement from May 19 to July 7, 1932. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School	(1917)	Washington
Bennett Medical College, Chicago	(1911)	Illinois
Northwestern University Medical School	(1928)	Utah
Rush Medical College	(1901) Arizona, (1912)	Utah
State University of Iowa College of Medicine	(1928)	Iowa
University of Maryland School of Medicine and College of Physicians and Surgeons	(1918)	Maryland
Minneapolis College of Physicians and Surgeons	(1900)	Minnesota
Washington University School of Medicine	(1927)	New York
Creighton University School of Medicine	(1923)	Nebraska
Columbia Univ. College of Phys. and Surgs.	(1918), (1929)	New York
University of Buffalo School of Medicine	(1903)	New York
Western Reserve University School of Medicine	(1930)	Ohio
University of Oregon Medical School	(1926)	Minnesota
Jefferson Medical College of Philadelphia	(1910), (1922)	Penna.
University of Pennsylvania School of Medicine	(1925)	Mass.
University of Pittsburgh School of Medicine	(1924)	Ohio

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Pennsylvania School of Medicine	(1930)	N. B. M. Ex.

Book Notices

Physiotherapy: Its Principles and Practice. By F. Howard Humphris, M.D., F.R.C.P., M.R.C.S., Hon. Consulting X-Ray Physician and Electrotherapist to Christ's Hospital, and Ralph E. Stuart-Webb, M.B., B.S., M.R.C.S. With contributions by Frank Romer, M.R.C.S., L.R.C.P., A. E. Hayward Pinch, F.R.C.S., M.R.C.P., and A. Gordon Watson, M.D. Cloth. Price, $4.50. Pp. 399, with 74 illustrations. New York: Macmillan Company, 1932.

Probably the most significant lesson to be derived from the reading of this book is the realization of the great variety of methods utilized in physical therapy and the overlapping of effects obtained by their employment. The entire category of agencies and technics now practiced as physical therapy is discussed, but, owing to the limited space devoted to each subject, only the most cursory impressions are left with the reader. From a practical point of view the book offers little more than an extensive propaganda in favor of this discipline. As a contribution to the subject it fails to add to the knowledge that is already at hand, contributed both by the earlier publications of Humphris and by the publications of contemporary writers in this field of practice. It is deficient in necessary detail because it has emphasized the broadest concepts of its clinical practice. The large canvas on which the authors have attempted to give outline to their subject is presented in optimistic colors, but the presentation is as unconvincing as are the modernistic sketchings of futuristic art. The novice will perhaps close the final page with a considerable degree of confusion, because it is doubtful whether he will be able by himself to employ a single physical agency from the generalized statements found in the text. At best, and perhaps this was the main purpose of the authors, the reader will obtain from its perusal a stimulus to orient himself in greater detail with this practice by reading the more concise works now at hand in medical literature. To the practitioner already oriented in the subject, the book will have no greater importance than another affirmation. The impression of the critical reader is that the work is the result of energy questionably expended. It has added nothing new and is but a regurgitation of information already well known or, in some instances, still in the realm of conjecture. The glossary will be found of practical value. It is concise in its definitions but not exhaustive in range. The book has that irritating quality of suggesting a wealth of therapeutic possibilities presented in such a generalized manner as to make it impossible to adapt the procedures for personal use.

Entstehung, Erkennung und Behandlung innerer Krankheiten. Von Dr. Ludolf Krehl, Professor in Heidelberg. Band II: Die Erkennung innerer Krankheiten. Von Dr. Ludolf Krehl. Second edition. Paper. Price, 12.80 marks. Pp. 197. Berlin: F. C. W. Vogel, 1932.

It is evident from the publication of a second edition one year after the first (reviewed in these columns, June 18) that this book on the principles of diagnosis in internal medicine was promptly welcome by the profession. The new edition is an expansion, not a retraction. The original text, save for a few small omissions, has been preserved, a sentence or two being added as an ending to a paragraph or for greater clarity or repeated insistence. Many new paragraphs supply information the author admits he forgot when he wrote the book; others pertain to matters of which he failed to realize the importance at the time; some are incidental to recent progress. To the criticism that he failed in the first edition to consider properly some modern tests for the function of certain organs, Professor Krehl replies that he does not believe they are as valuable as their authors say they are; that a great deal needs to be learned about the malfunctioning for which certain methods of detection have been prescribed. He maintains emphatically that diagnosis is promoted by numerous exact chemical procedures, that this ground should be plowed and sown more than ever before, in spite of the frequent harvests of more stone than bread. He insists that as many as possible of the refined steps for accurate diagnosis should be carried out by the attending physician; that thereby the standing of the physician is enhanced and the expense of the patient lessened; that no measures of value in making a diagnosis should be omitted; that when outside help is necessary, careful judgment should determine both its amount and its source.

Among new statements more directly applicable to special diagnosis are references to the difficulty in recognizing hemorrhagic diseases when surfaces and joints are not particularly involved, to the likelihood of thinking some of the lymph glands are tuberculous early in leukemia when only a few are enlarged; the occurrence of essential thrombopenia in acute as well as chronic, and in both severe and mild, forms; the recognition, at times, of Vaquez's disease almost at a glance by the ruddy hue of the patient and its adaptive development compensating for cardiac or for pulmonary disease. When the disease is primary, the spleen is enlarged and blood pressure may be increased. A paragraph in the first edition (p. 64) in which are discussed the relations of small arteries generally, their smooth muscle and innervation to pulmonary edema has been omitted. In its place, dyspnea from sclerosis of the arteries of the respiratory centers is contrasted with that from heart disease. Attention is called to sequences of influenza caused by disturbances in the vegetative nervous system and lasting many months; to the possibility of, and ways of recognizing, meningitis and encephalitis when infectious diseases beginning tempestuously possess such complications; to the existence of nephritis before it becomes outspoken. Efforts should be made to detect vascular disease when nephritis has been demonstrated. As for the term "nephrosis," Krehl says that he has found no occasion to employ it. He believes that the interrelation of physical and mental states in patients with rheumatism is important, recalling that rheumatism is conspicuous in the arena of quackery. Although others have observed a wide variety of pains with hypertension, he has not noted such symptoms especially. Changes in joints caused by inflammation, he believes, should be differentiated sharply from those due to degeneration. The two types of disease are often so interlaced, especially when they are chronic, that it is not easy to decide just what dominates. But the retrogressive changes belong to arthritis deformans, whereas the inflammations suggest infection.

Krehl believes that modern conceptions have reduced the usefulness of subdividing aphasia into various forms, as has long been the practice of many writers, and recommends a thorough understanding of the nature of speech and of its associated mental activities. Also important in this connection is knowledge of the general condition of the brain in patients with aphasia. A circumstantial description of the differences between nervous cardiac disturbances and those due to organic disease has been introduced. Long clinical experience has taught the author that neurotic patients with functional heart symptoms are actually ill and that some of them may suffer at the same time from a complicating structural heart disease. Among the many expedients for learning the condition of hepatic functions, he has found tests with dextrose and galactose useful; for pancreatic functioning, he examines the blood and urine for diastase. When jaundice is present, the possibility of a syphilitic infection should be investigated and tests for hemolysis made. In the chapter on digestion, a short account of the tongue in disease has been inserted. It was overlooked in the first edition. By such statements and by many others of less significance the book has been improved and enlarged, the latter contributed to by a change to uniform type, so that the pages are increased by twenty-five. As in the first volume, "Physiologische Physiologie," references to investigations in countries other than Germany are relatively few. With publication of the third volume, "Behandlung," there will be available a complete modern work on internal medicine of an unusual type in which the customary ritualistic description is replaced by interpretation of principles.

Male Disorders of Sex. By Kenneth M. Walker, F.R.C.S., Lecturer in Venereal Diseases to St. Bartholomew's Hospital. Cloth. Price, $2. Pp. 191. New York: W. W. Norton & Company, Inc., [n. d.]

This volume is devoted largely to a consideration of the mechanism of sex life and to the causes and treatment of impotence. The author also considers homosexuality, masturbation, priapism and continence. The second part of the book is concerned with sterility and its treatment. The volume is small but highly concentrated. It really tells all that a general practitioner needs to know about the subjects it discusses. The chapters dealing with the available surgical procedures are sufficiently conservative and do not promise much that cannot be delivered.

Cancer: Civilization: Degeneration. The Nature, Causes and Prevention of Cancer, Especially in Its Relation to Civilization and Degeneration. By John Cope. Cloth. Price, 15/-. Pp. 293, with 53 illustrations. London: H. K. Lewis & Company, Ltd., 1932.

This is another of the too numerous speculative treatises on cancer. It is based on the assumption that primitive people and earlier civilizations were relatively free from this disease, and that cancer depends largely on social conditions and personal habits. The argument wanders through the fields of sociology, economics and politics, with particularly unfavorable comments on British politics and international relationships as being part of the picture of social decadence that is at the bottom of the occurrence of cancer in the British Isles. The arguments are reinforced by illustrations from *Punch* and quotations from sacred and profane writers. A fair idea of the significance of the work can be obtained from the following statement from the concluding chapter: "Cancer is a painful disease inflicted upon us by a beneficent spirit or 'nature' for the purpose of warning us against the commission of some breach of law. That the fault is a heinous fault, the sin a deadly sin, may be gathered from the severity of the punishment. The place and quality of the cancer also furnish us with clues as to the kind of sin being committed. Nature fits the punishment to the crime. Our implicit faith in the beneficence of the Creator or of Nature assures us that this terrible visitation, whereby the nation is worse than decimated, is due to our own wrongdoing. We know that in order to deserve so hideous and so extensive a punishment the fault must be both serious and widespread—of national as well as of individual significance. Our study of the causes and nature of cancer enables us to state that our offense is that of idleness —of not using certain organs to an extent which shall maintain their efficiency. It signifies that we have disregarded the edict that fitness can be secured only by effort: that in nature it is the fit and not the unfit which win in the race." On this material is wasted an excellent piece of book making, worthy of a better cause.

Case for Mr. Fortune. By H. C. Bailey. Cloth. Price, $2. Pp. 308. Garden City: Doubleday, Doran & Company, Inc. Published for the Crime Club, Inc., 1932.

This new accumulation of detective stories continues the quality set by the author in previous volumes. Mr. Fortune is a medical detective with a great deal of common sense and sound philosophy. Most volumes of mystery and detection are written by writers with a flair for plot but without much literary skill. Mr. Bailey reveals not only everything desirable in the way of plot but a literateness that makes him worth while even for the most intelligent reader.

Traité d'anatomie humaine. Par P. Poirier et A. Charpy. Sous la direction de A. Nicolas, *professeur honoraire d'anatomie à la Faculté de médecine de Paris.* Avec la collaboration de MM. O. Amoëdo, Argaud, et al. Tome I: Premier fascicule (première division): Introduction, par L. Manouvrier. Anatomie générale, par J. Verne. Développement des os, par J. Verne. Constitution générale du squelette, par M. Augier. Squelette céphalique, par M. Augier. Fourth edition. Paper. Price, 130 francs. Pp. 667, with 393 illustrations. Paris: Masson & Cie, 1931.

The appearance of the fourth edition of this work is a matter of great interest to anatomists, physicians, surgeons and students the world over. They have learned to regard the book as a valuable and reliable storehouse of information. The first edition was published in five volumes, the first of which appeared in 1892. Three parts of the fourth edition have already appeared, a section on angiology, another on arthrology, and now this, which is the first section of the first volume and which, after the introduction and brief chapter on general anatomy, is devoted to the skeleton of the head. Sections devoted to the lymphatics and to the skeleton of the thorax, vertebral column and limbs are in preparation. This section is largely the work of Augier. It has been entirely recast and considerably enlarged, containing 566 pages as compared with 203 in the third edition, and 313 illustrations as compared with 197. As the section on general anatomy and an introduction fill 88 pages, it constitutes altogether a volume of 667 pages. The excellent qualities of previous editions are retained, and there are added sections on the skeleton of the head taken as a whole, devoted to general configuration, asymmetry, sutures, structure and physical qualities, growth, changes with age and senility, differences in the sexes, craniometry and its applications, and variations and malformations due to abnormal conditions existing either in the bone itself or in the brain. A valuable innovation is an index. The extensive bibliographic list which characterized previous editions is brought in this one down to 1928, although the enormous list of papers that have appeared in recent years has made it impossible to include all of them. The new edition cannot fail to be of great service because there is evident in it the excellent organization and the clearness of statement which have always characterized this, the most complete of French works on anatomy.

Artériographie des membres et de l'aorte abdominale. Par Reynaldo dos Santos, professeur à la Faculté de médecine de Lisbonne, A. C. Lamas, chirurgien des Hôpitaux de Lisbonne, et J. P. Caldas, radiologue des Hôpitaux de Lisbonne. Préface du Professeur Leriche. Paper. Price, 45 francs. Pp. 192, with 54 illustrations. Paris: Masson & Cie, 1931.

This is a record of the work done by dos Santos and other Portuguese surgeons in attempts to study the condition of arteries in living patients. They have followed methods that were introduced by Dr. Barney Brooks in this country ten years ago and which have been applied by other surgeons of America and of Europe ever since. The Portuguese surgeons have ventured daringly to extend these methods to a study of the abdominal aorta and of the arteries of the brain. They have injected sodium iodide and other organic salts of iodine directly into the aorta through needles 12 cm. long and 0.9 mm. in diameter, introduced obliquely from the back and made to pierce the aortic wall. Through these needles they injected, with the help of a mechanical apparatus, solutions of sodium iodide in amounts up to 45 Gm., and by means of roentgenograms made in the few seconds immediately following the injection have suceeded in showing up, with astonishing clearness and completeness, the blood vessels of the abdomen and of all its viscera. The pressure apparatus utilized enables them to control the amount injected and the speed of its delivery into the circulating blood. They have applied similar methods to the study of arteries in the brain and in the limbs. The book contains reproductions of the roentgenograms thus obtained. Dos Santos states that he has made more than 300 injections into the aorta and that he has seen no accidents or complications which would confirm the fears of surgeons who hesitate to adopt such daring and apparently dangerous procedures. Among the advantages accruing from this method of direct observation of arteries are that it permits the exact observation of abdominal aneurysms or vascular obstructions, the differential diagnosis of tumors of the left hypochondrium, the demonstration of abnormal vessels in hydronephroses, and observations of the condition of the circulation in the early stages of many diseases in which changes in the blood vessels and in the modalities of their working are important factors. An enthusiastic introduction is contributed by René Leriche of Strasbourg, pointing to the many ways in which this method may be useful in the future. There is also a brief historical account of work along similar lines. The accounts of technical methods are brief but definite and clear. An appendix added after the main part of the book had already gone to press advocates the utilization of some new compounds of thorium which promise to be both less toxic and less painful than sodium iodide and at the same time sufficiently opaque. The author commends also the utilization of an iopax derivative which has given excellent results.

The Expectant Mother's Handbook. By Frederick C. Irving, A.B., M.D., Professor of Obstetrics, Harvard Medical School. Cloth. Price, $1.75. Pp. 203, with 26 illustrations. Boston: Houghton Mifflin Company, 1932.

This book, written by a leading obstetrician, answers in a satisfactory and lucid manner questions which prospective mothers usually ask. In writing this book the author had two objects in mind. The first was to acquaint women with the facts of pregnancy and labor and the second was to dispel certain untruths and superstitions concerning these physiologic processes. The author has succeeded admirably in his task and hence the book can be highly recommended to expectant mothers. It is unfortunate that the author speaks of a final examination in the light in which it is considered by most physicians today. He should emphasize the fact that an examination made six or eight weeks after confinement and usually designated as the final examination should not be looked on as the final contact between physician and patient until a new pregnancy supervenes. Women should be urged to see their physicians not only six weeks after a baby is born but at least once more before the child is a year old and at least once a year thereafter. These examinations are most important to prevent morbidity, especially cancer.

De mensch en zijn marine verleden: Een theorie over de functie en de pathologie der tonsillen, en tevens een aanwijzing omtrent een mogelijke betrekking daarvan tot de endocrine- en speekselklieren. Door Dr. C. A. J. Quant, Arts te Diepenheim. Paper. Price, 1 guilder. Pp. 39. Haarlem: De Erven F. Bohn, n. v., 1932.

The author has appended a summary of this article in rather quaint English. The title of the summary is "On Tonsils and Adenoids, a Theory of Their Origin, Their Function and Their Pathology, and Their Possible Relation to the Salival and Endocrine Glands." The author is endeavoring to determine the actual significance of the lymphatic ring of Waldeyer. He has studied the comparative anatomy of the gills and their function in fishes, endeavoring to find in evolution more explanation regarding the function of the upper portion of the throat. The author assumes there is a certain excretive function connected with the adenoids. There is also a relation between this function and that of the salivary glands. He considers there is a parallelism between the action of the iodine in the sea water and the iron in the lungs, both acting as catalytic agents. The author compares the different parts of the ring of Waldeyer with various portions of the so-called ring of endocrine glands, such as the thyroid, hypophysis and parathyroid. It is unfortunate that the translation is not accurate, so that it is difficult to get a correct idea of the hypothetical propositions advanced by the author.

Medicolegal

Hospital's Liability for Safety of Delirious Patient

(Maki v. Murray Hospital (Mont.), 7 P. (2d) 228)

Maki sued the Murray Hospital and a member of its medical staff, for injuries sustained while a patient in the hospital. He was admitted to the hospital for treatment for erysipelas. He alleged that he became delirious and that the defendants negligently permitted him to fall from the third floor of the hospital building. The trial court directed a verdict in favor of the defendant-physician and charged the jury that the plaintiff must prove negligence on the part of the hospital by a preponderance of evidence, that the law presumes that the hospital was not guilty of negligence, and that the mere fact that the plaintiff was injured does not of itself create any presumption or inference of negligence on the part of a hospital. The jury returned a verdict for the hospital. Subsequently, the trial court concluded it had erroneously instructed the jury and granted the plaintiff a new trial. The hospital appealed to the Supreme Court of Montana, where the action of the trial court, granting a new trial, was affirmed.

The plaintiff was admitted to the hospital, March 20. On the morning of March 23, while the nurse in charge was in the bathroom washing up the dishes from the plaintiff's breakfast tray, a painter mounted a scaffold in the hall and peered through the plaintiff's transom. The plaintiff becoming violently delirious, sprang from his bed, rushed into the bathroom, and told the nurse that a man was coming through the transom to shoot him. The nurse tried to quiet the patient and at the same time tried to restrain him. He struck her, broke from restraint, and jumped from the window. It is apparent, said the Supreme Court, from the record that the plaintiff had no knowledge in what manner he received his injury, or in what manner the defendant hospital was negligent in permitting him to become injured. He knew, however, as an ordinary reasoning being, that an unconscious patient in a hospital would not ordinarily receive such injuries unless those to whose care he had been committed were negligent. While it is necessary, continued the court, in every personal injury action to prove negligence, courts generally recognize the fact that persons are often injured under circumstances where it would be impossible to prove the facts showing negligence, and yet, by common knowledge and experience, it is clear that such injury would not have been sustained had the responsible party not been negligent. In such cases the doctrine of res ipsa loquitur is applicable. While the doctrine is usually applied where the injury is occasioned by machinery and instrumentalities under the exclusive control and operation of the defendant, the doctrine should apply, in the opinion of the court, with equal force in cases wherein medical and nursing staffs take the place of machinery and may, through carelessness or lack of skill, inflict, or permit the infliction of, injury on a patient who is thereafter in no position to say how he received his injury. This doctrine applies in the present case, said the court, and unless the hospital explained away the presumed negligence, the plaintiff is entitled to recover, and the jury should have been so instructed.

A hospital conducted for profit is not an insurer of patients against self-inflicted injuries but it is required to use ordinary and reasonable care and diligence in their treatment. A patient is entitled to such reasonable care and attention for his safety as his mental and physical condition may require. The degree of such care should be in proportion to the physical and mental ailments of the patient rendering him unable to look after his own safety. It is the duty of a hospital to use reasonable care to employ only competent physicians and nurses. Those who by reason of affliction place themselves in the hands of the medical and nursing staffs of a hospital, and agree adequately to compensate the hospital for the care and attention required by their mental and physical condition, have a right to rely on the performance of such duties. A hospital cannot exculpate itself merely by showing that those in charge of the patient did not know the conditions existing, regardless of what they should have known. The question of whether or not the explanation on the part of the hospital as to the circumstances under which the plaintiff received his injury was sufficient to overcome the prima facie case resulting from the application of the doctrine of res ipsa loquitur, said the court, was clearly a jury question, under proper instruction from the court.

Workmen's Compensation Acts: Weight to Be Attached to Opinions of Attending Physician.—On May 14, 1931, in the course of McReynolds' employment, a splinter 1½ inches long was accidentally embedded in his arm, just above the elbow. Infection followed. He recovered sufficiently to be able to return to work, but he was unable to discharge fully his duties as shop foreman. There were red streaks radiating up and down the arm from the wound, for several inches, and the presence of a lump indicated the development of pus at the site of the wound. The wound was lanced on or about June 1, after which it appeared to heal, although McReynolds continued to complain of pain in the arm. On June 5, pneumonia developed suddenly, accompanied by a low leukocyte count. Death occurred, June 12. McReynolds' widow claimed compensation under the workmen's compensation act. The two physicians who attended McReynolds during his last illness testified that the wound did not cause the pneumonia from which he died, but one of them was extremely hesitant about committing himself concerning the matter. The workmen's compensation commissioner who heard the cause appointed three disinterested physicians and propounded to them a hypothetical question that described the circumstances under which McReynolds was injured, the symptoms from which he suffered, and his death, and asked what in the several opinions of these witnesses caused the pneumonia that resulted fatally. They answered that death resulted from septic pneumonia, probably due to the injury. The Industrial Commission then made an award in favor of the widow, from which the employer and the employer's insurer appealed. The general rule, said the Supreme Court of Appeals of Virginia, is that when an attending physician is positive in his diagnosis of a disease, great weight will be given by the courts to his opinion. However, when it appears, as we think it does in this case, that the diagnosis is shaded by doubt, and there is medical expert opinion contrary to the opinion of the attending physician, then whoever is judge of the facts is left free to adopt that view which is most consistent with reason and justice. The Industrial Commission, the trier of the facts in this case, was of the opinion that the preponderance of evidence showed that the deceased died of septic pneumonia, caused by infection from the wound. In that conclusion, the Supreme Court of Appeals concurred. The award in favor of the widow was therefore affirmed.—*Bristol Builders' Supply Co., Inc., v. McReynolds (Va.), 162 S. E. 8.*

Insanity: Annulment of Marriage.—To render a marriage invalid because of insanity on the part of one of the parties to the marriage contract, it must be shown clearly and convincingly that at the time of the marriage the alleged incompetent party was unable to understand the nature of the contract of marriage and to appreciate the legal consequences naturally deducible therefrom. Every variation from a normal mental condition is not in itself enough to void the marriage contract. The mental defect or derangement must be one having a direct bearing on such contract. Mere weakness and imbecility of mind is not sufficient, nor eccentricity nor partial dementia, but it must be such a general mental derangement as prevents the party from comprehending the nature of the contract of marriage and from giving to it his free and intelligent consent. If the party entering the marriage relation has sufficient capacity to understand the nature of the contract and the duties and responsibilities which it creates, the marriage will be valid.—*Elfont v. Elfont (Md.), 157 A. 741.*

Health Insurance: Treatment by Mail as "Regular Treatment by a Physician."—A health insurance policy provided that certain benefits would be paid if the insured "shall be totally disabled from performing his or her duties, although not confined in the house, but receiving regular treatments from the physician at least once each seven days." The insured apparently became totally disabled and was under the care of a physician. On his advice, she went to her father's home in a nearby town. Thereafter she was treated by him at least once a week, either at his office or by mail. It was contended that this did not constitute "regular treatment by a physician." Treatment by sending medicine or prescriptions through the mail, said the Supreme Court of Arkansas, constitutes regular treatment by a physician within the meaning of the insurance policy.—*Inter-Ocean Casualty Co. v. Huddleston (Ark.), 45 S. W. (2d) 21.*

Workmen's Compensation Acts: Liability of Employer for Medical Treatment in the Absence of Request Therefor.—Under the Oklahoma workmen's compensation act, an employer and his insurance carrier are not liable for medical expenses incurred by an injured employee, if the employee does not request medical treatment from them, gives them no notice of his need for medical treatment and they have no knowledge of that need.—*Summit Drilling Co. v. Graham (Okla.), 6 P. (2d), 693.*

Charitable Hospitals: Liability for Negligence of Nurse.—A charitable hospital is not liable in damages to a pay patient for injury due to the negligence of a nurse in administering to that patient medicine intended for another, provided the hospital has exercised ordinary care in the selection and retention of the nurse.—*Enell v. Baptist Hospital (Texas), 15 S. W. (2d) 395.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Montreal, Sept. 19-23. Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Neb., Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, French Lick, Indiana, Sept. 12-14. Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American College of Surgeons, St. Louis, October 17-21. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director General.

American Congress of Physical Therapy, New York, Sept. 6-10. Dr. J. B. Bulmer, 185 North Wabash Avenue, Chicago, Secretary.

American Hospital Association, Detroit, Sept. 12-16. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Detroit, September 28-30. Dr. C. C. Vinton, 211-02 S. Conduit Blvd., Rosedale, N. Y., Secretary.

American Public Health Association, Washington, D. C., October 24-27. Dr. Kendall Emerson, 450 Seventh Avenue, New York, Acting Executive Secretary.

American Roentgen Ray Society, Detroit, September 27-30. Dr. Eugene P. Pendergrass, 3400 Spruce Street, Philadelphia, Secretary.

Associated Anesthetists of the United States and Canada, New York, October 17-21. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association of Military Surgeons of the United States, Hartford, Conn., October 20-22. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Memphis, Tenn., September 15-17. Dr. E. D. Plass, University Hospital, Iowa City, Secretary.

Colorado State Medical Society, Estes Park, Sept. 8-10. Mr. Harvey T. Sethman, 227 16th Street, Denver, Executive Secretary.

Delaware, Medical Society of, Lewes, September 27-28. Dr. W. O. La Motte, 604 Medical Arts Building, Wilmington, Secretary.

Idaho State Medical Association, Pocatello, Sept. 16-17. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, Michigan City, September 27-29. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary.

Inter-State Postgraduate Medical Association of North America, Indianapolis, October 24-28. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

Kentucky State Medical Association, Louisville, October 3-6. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Kalamazoo, Sept. 13-15. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Nevada State Medical Association, Reno, Sept. 23-24. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.

Northern Minnesota Medical Association, Crookston, Sept. 19-20. Dr. O. O. Larsen, Detroit Lakes, Secretary.

Oregon State Medical Society, Klamath Falls, Sept. 22-24. Dr. Albert W. Holman, 410 Taylor Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, October 3-6. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Southern Minnesota Medical Association, Rochester, Sept. 12. Dr. M. C. Piper, Mayo Clinic, Rochester, Secretary.

Utah State Medical Association, Ogden, Sept. 15-17. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, October 6-7. Dr. William G. Ricker, 31 Main Street, St. Johnsbury, Secretary.

Washington State Medical Association, Tacoma, Sept. 12-14. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-16. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

7: 553-694 (June) 1932

*Apical Systolic Murmurs in Children: Follow-Up Observations in One Hundred Cases. M. H. Fineberg and L. G. Steuer, Cleveland.—p. 553.
Roentgenographic Studies of Right Ventricle. G. Nemet and J. B. Schwedel, New York.—p. 560.
Functional Longitudinal Block in Human Heart: Probable Case with Unusual Arhythmia. W. J. Kerr and J. J. Sampson, San Francisco.—p. 574.
*Status Angiosus Induced by Paroxysmal Auricular Fibrillation and Paroxysmal Tachycardia. P. D. White and P. D. Camp, Boston.—p. 581.
*Treatment of Spasmodic Vascular Disease of Extremities of Raynaud Type. Alice R. Bernheim and Isabel M. London, New York.—p. 588.
Ventricular Bigeminy (Parasystole or Reciprocal Rhythm) in Atrioventricular Rhythm. D. Luten and J. Jensen, St. Louis.—p. 593.
Study of Gallop Rhythm by Combination of Phonocardiographic and Electrocardiographic Methods. P. Duchosal, Geneva, Switzerland.—p. 613.
Localization of Experimental Ventricular Myocardial Lesions by Electrocardiogram. J. H. Crawford, G. H. Roberts, D. I. Abramson and J. C. Cardwell, Brooklyn.—p. 627.
Coarctation of Aorta (Adult Type): Report of Three Cases. H. L. Ulrich, Minneapolis.—p. 641.
*Action of Adrenalin on Patients with Complete Heart Block and Stokes-Adams Seizures: Comparison of Effects of the Drug on Patients with Syncopal Attacks Due to Standstill of Ventricles and Those Due to Ventricular Fibrillation. S. P. Schwartz and A. Jezer, New York.—p. 652.
Auriculoventricular Nodal Paroxysmal Tachycardia and Auricular Flutter: Case Report. F. B. Carr, Worcester, Mass.—p. 668.

Apical Systolic Murmurs in Children.—A follow-up study, covering an average period of six years, was made by Fineberg and Steuer of 100 children with uncomplicated apical systolic murmurs, with the following results: Serious complications (mitral stenosis, aortic insufficiency or both) developed in 30 per cent of all the patients. Serious cardiac complications developed in 50 per cent of those giving a history of rheumatic fever or chorea. Serious cardiac manifestations developed in 37 per cent of those showing clinical enlargement at the first examination. Serious cardiac manifestations developed in 40 per cent of those showing enlargement by orthodiagram. Further evidences of cardiac disease developed in only 9 per cent of those giving entirely normal fluoroscopic observations. Only 8 per cent of the patients showed complete disappearance of the murmur. Only one of the seven patients 5 years of age or under presented serious cardiac complications and this patient had an attack of chorea at 8 years of age, following which mitral stenosis developed. The electrocardiogram seemed to be of no value in estimating the prognosis.

Status Anginosus Induced by Paroxysmal Auricular Fibrillation and Paroxysmal Tachycardia.—White and Camp report four unusual but important cases to illustrate the fact that a status anginosus may occur without coronary thrombosis. A great increase in heart rate due to paroxysmal auricular fibrillation or paroxysmal tachycardia (with accompanying drop in systolic blood pressure or pulse pressure) was evidently responsible for the induction of the angina pectoris that was at other times a characteristic result of effort in all of these four cases. Two of the patients were men, aged 62 and 66, and two were women, aged 68 and 75. One of the men (the first) and one of the women (the second) died suddenly eighteen months and fifteen months, respectively, after the first attack of angina pectoris induced by the abnormal heart rhythm. The other two patients were alive one year after their first attacks of this nature.

Treatment of Spasmodic Vascular Disease.—Bernheim and London describe four cases in which there was spasmodic vascular disease of the Raynaud type characterized by hypersensitiveness to cold. Distinct benefit was obtained by a high-calcium and high-vitamin regimen. The authors call attention to the fact that the effect of calcium differs from that of sympathectomy in that no permanent alteration of the vasomotor nervous mechanism is brought about.

Action of Epinephrine on Heart Block.—Schwartz and Jezer gave epinephrine in varying dosages to four patients who had complete auriculoventricular dissociation and who were subject to syncopal seizures. In two of the patients the syncopal attacks were due to a slowing of the ventricular rate, while in the other two they were associated with transient periods of ventricular fibrillation. The same dose of epinephrine was found to act variably at different times in the same patient when administered either subcutaneously or intramuscularly. Epinephrine was found to increase both the auricular and the ventricular rates of the patients in whom the syncopal seizures were due to standstill of the ventricles. The increases in these rates were observed both preceding and during the Stokes-Adams attacks and were both regular and irregular in rhythm. The drug produced its effects primarily through a direct stimulation of the idioventricular pacemaker. Epinephrine induced short periods of transient ventricular fibrillation with syncope in two patients in whom the Stokes-Adams attacks were found to be due to ventricular fibrillation. In one of these patients the drug also produced auricular fibrillation and a tachysystole of the ventricles, which lasted on and off for several hours at one time. In one patient with already established ventricular fibrillation the intracardiac injection of 1 mg. of drug seemed to perpetuate the mechanism resulting in alternating periods of ventricular fibrillation with tachysystole lasting over thirteen minutes and ending in death. The authors consider that as a therapeutic measure epinephrine is a life saving drug in patients in whom syncopal seizures are due to a slowing of the ventricular rate. It is distinctly contraindicated in those in whom the attacks are the result of ventricular fibrillation, and its indiscriminate administration in such patients may result in death.

American J. Obstetrics and Gynecology, St. Louis

23: 775-946 (June) 1932

*Polyneuritis Gravidarum: A "Presumable" Toxemia of Pregnancy. K. M. Wilson and P. Garvey, Rochester, N. Y.—p. 775.
Influence of Age and Color on Maternal and Fetal Death Rate. C. H. Peckham, Baltimore.—p. 787.
Bromsulphalein Test for Liver Function in Toxemias of Pregnancy. J. M. Freiheit, Waterbury, Conn.—p. 797.
Calcium and Inorganic Phosphorus Content of Prenatal and Postpartum Serum. J. W. Mull and A. H. Bill, Cleveland.—p. 807.
*Coagulability of Blood in Pregnancy. P. B. Bland and L. Goldstein, Philadelphia.—p. 815.
Lower Segment Cesarean Section, or Celioisthmotomy: Preliminary Report. P. D'Acierno, Union City, N. J.—p. 821.
Malignant Ovarian Neoplasms, with Report of End-Results in Series of Ninety-Three Cases. C. C. Norris and D. P. Murphy, Philadelphia.—p. 833.
End-Results of Radium Therapy in Carcinoma of Cervix. F. E. Keene and R. A. Kimbrough, Jr., Philadelphia.—p. 838..
Specific Gravity of Blood in Pregnancy and in Puerperium: Study of Seventy-Five Patients. D. Polowe, Paterson, N. J.—p. 843.
*Intraperitoneal Hemorrhage of Ovarian Origin. N. B. Sackett, New York.—p. 849.
Investigation of Sterility. F. E. Keene and F. L. Payne, Philadelphia.—p. 857.
Nupercaine in Spinal Anesthesia. H. G. Holder, San Diego, Calif.—p. 862.
Use of Sodium Isoamylethylbarbiturate (Sodium Amytal) in Treatment of Eclampsia. E. L. King, G. A. Mayer and T. B. Ayo, New Orleans.—p. 867.
*Some Practical Aspects of Hypothyroidism. S. C. Breckinridge, Lexington, Ky.—p. 871.
Symmetrical Cortical Necrosis of Kidneys in Pregnancy. C. G. Warner and J. T. Hibbitts, Baltimore.—p. 875.
*Delayed Chloroform Poisoning. H. J. Stander, New York.—p. 882.
Leukoplakia of Uterine Cervix. O. S. Kretschmer, Denver.—p. 885.
Modification of Aschheim-Zondek Test by Use of Blood Serum: Preliminary Report. A. E. Laszlo, Bridgeport, Conn.—p. 889.
Atresia Ani Vaginalis. J. E. Potts, Los Angeles.—p. 892.

Polyneuritis Gravidarum.—Wilson and Garvey present the case histories of three patients who showed signs of extensive polyneuritis associated with pregnancy. There was also a profound mental disturbance in each instance, and at the onset of the illness severe and persistent vomiting. *The authors* feel that they satisfactorily excluded such toxic agents as alcohol and lead and also infection as possible etiologic factors and feel justified, therefore, in ascribing the origin to a toxemic process associated with pregnancy. It is impossible to make any definite statements in regard to the exact etiology, and for the present the condition must remain in the category of unsolved problems in common with the other toxemias of pregnancy.

Coagulability of Blood in Pregnancy.—Tests for determinations of the coagulation time were performed by Bland and Goldstein on 100 nonpregnant women and on 400 gravid patients in the various periods of pregnancy. Additional tests were performed on 100 patients during the lying-in period. It was found that only 36 per cent of 100 normal nongravid individuals gave a clotting time ranging between one and five-tenths and two and five-tenths minutes, whereas the coagulation was completed in 349, or 87.2 per cent, of the 400 women examined in pregnancy before two and five-tenths minutes. On the basis of these results one may safely conclude that the coagulability of the blood (as shown by the test employed) is relatively increased in pregnancy. Because of the small differences in the clotting time of the pregnant and nonpregnant individuals, it is the feeling of the authors that this test cannot be relied on to disclose the efficiency of the mechanism of coagulation. The results of the test in the puerperal period show that there is a rather sharp tendency for the readings to return to the values found in the nongravid state.

Intraperitoneal Hemorrhage of Ovarian Origin. — In twenty-one out of twenty-six cases of intraperitoneal hemorrhage of ovarian origin studied by Sackett, the symptoms were related to the bleeding ovary. In five cases (19.2 per cent) the other pathologic changes in the pelvis entirely overshadowed the bleeding. Microcystic degeneration as a cause of ovarian hemorrhage was not sustained, although both conditions may be manifestations of a disturbance in the growth, maturation, rupture and metamorphosis of the follicle. The wide variety of normal and pathologic alterations of the ovary is shown by this series. In the light of these factors, trauma seems only to hasten or aggravate a condition already destined to occur. Correlation between menstrual history, onset of symptoms, and the cyclic stage of the removed ovarian and endometrial tissue should in the future add to the knowledge of the pathogenesis and diagnosis of the condition. Massive ovarian hemorrhage will be mistaken by careful observers for ruptured extra-uterine pregnancy unless due weight and credence are given to the clinical history and social status of the patient. The attendant should refrain, whenever the social status of the patient precludes legitimate pregnancy, from making the diagnosis of ectopic pregnancy until it is proved by pathologic examination. Discrete ovarian hemorrhage will be mistaken for acute and subsiding acute appendicitis and lead to unnecessary operation. If the onset of pain is correlated to the estimated ovulation time as well as to the date of menstruation, and if this relation applies to the previous attacks, one may suspect the ovary; and a rapid fall in the leukocyte count and sedimentation rate points to cessation of bleeding as well as absorption of the effused blood. The occurrence of ovarian hemorrhage due to trauma per vaginam adds another to the classic indications for the correction of retroversion and ovarian prolapse.

Hypothyroidism.—Breckinridge emphasizes the fact that *slight to moderate degrees of hypothyroidism may be causal* factors in amenorrhea and, more frequently, menorrhagia and probably abortion, miscarriage, premature labor, and death of the fetus. Hypothyroidism is one of the more frequent causes of menorrhagia and metrorrhagia and should be excluded before resort is had to the curet, radium, roentgen rays or abdominal section.

Delayed Chloroform Poisoning.—Stander gives the mortality in delayed chloroform poisoning as about 80 per cent. Intravenous dextrose therapy and antiacidosis measures, such as sodium bicarbonate intravenously, offer the only hope of recovery. The author believes that chloroform should not be used in any surgical procedure, except by an expert anesthetist especially schooled in its use. The only place for chloroform in obstetrics is late in the second stage, when it should be administered in whiffs (anesthesia à la reine); and even then it should be used only when no other anesthetic is available or indicated.

American Journal of Physical Therapy, Chicago

9: 57-84 (June) 1932

*Electrosurgery: Its Use in General Surgery and Cancer. B. F. Boland, Boston.—p. 61.
Dangers of Internal Radium Therapy. F. B. Flinn, New York.—p. 65.
Peak Voltage Phenomena of High Frequency Currents in Relation to Electrocoagulation. H. P. Pullwitt, Chicago.—p. 72.
Electrocoagulation of Tonsils. W. A. Gross, Chicago.—p. 77.

Electrosurgery.—According to Boland, the scope of electrosurgery to the general surgeon is increasing in application. Brain tumors, neoplasms of the skin and mucous membranes not involving vital structures, epitheliomas, polypi, papillomas, hemorrhoids, cervical erosions, urethral caruncles, leukoplakia, lupus vulgaris, moles and warts are among the many conditions in which this modality has been applied. The laryngologist finds use for the application in tonsil work, nasal polypi, carcinoma of the larynx, leukoplakia, pharyngeal bands and remnants of tonsillar tissue. The author believes that the recent advancement in McCarthy's technic in urology will in ten years eliminate 50 per cent of prostatic operations. Trowbridge's success in extensive postoperative abdominal adhesions affords a new approach for the relief of this class of sufferers. Its application in breast and rectal work has been utilized extensively. The employment of some form of electrosurgery together with the proper technic is the better method of treatment in localized cancer or allied lesions of the skin or mucous membranes.

American Journal of Surgery, New York

16: 401-604 (June) 1932

Newer Surgical Methods of Treating Disease of Vascular System. W. W. Babcock, Philadelphia.—p. 401.
Transurethral Correction of Prostatic Obstruction. T. M. Davis, Greenville, S. C.—p. 408.
Elliott Treatment of Pelvic Inflammations. H. F. Graham, Brooklyn.—p. 423.
Hydraulic Vicious Circle as It Develops in Acute Appendicitis. C. van Zwalenburg, Riverside, Calif.—p. 427.
Slough Prevention in Injection Treatment of Varicose Veins by New Dye Method. H. Biegeleisen, New York.—p. 441.
*Injection Treatment for Varicose Veins, with Especial Reference to Attending Dangers and Complications: Report of Case of Congenital Arteriovenous Fistula. A. P. Stoner, Des Moines.—p. 444.
Present Day Status of Anesthetic Agents. M. Saklad, Providence, R. I.—p. 451.
Experience with Lumbar Anesthesia in Obstetrics. S. A. Cosgrove, Jersey City, N. J.—p. 466.
Tuberculosis of Large Intestine. G. M. Linthicum, Baltimore.—p. 471.
Right Hemicolectomy with Ileocolic Tube Drainage. W. L. Wolfson, Brooklyn.—p. 478.
Reduction of Fetal Mortality in Obstetric Service. E. Speidel, Louisville, Ky.—p. 485.
Comments on Torsion of Adnexa, with Report of Illustrative Cases. E. Shute, Chicago.—p. 490.
Treatment of Hernia, with Especial Reference to Injection Method. F. D. La Rochelle, Springfield, Mass.—p. 501.
*An Aid in Differential Diagnosis of the Acute Surgical Abdomen from Intercostal or Parietal Neuralgias. H. Feldman, Brooklyn.—p. 504.
Case of Unusual Sublingual Dermoid. M. Joseph, Passaic, N. J.—p. 509.
Dermoid Cyst of Temporal Fossa. J. E. Heard and P. D. Abramson, Shreveport, La.—p. 510.
Desmoid Tumor of Abdominal Wall. D. H. Bessesen, Minneapolis.—p. 513.
Relationship Between Hydronephrosis and Aberrant Renal Vessels: Report of Unusual Cases of Bilateral Hydronephrosis Associated with Aberrant Vessels. J. A. Lazarus, New York.—p. 515.
Lipoma: Two Cases. G. Webb, Brooklyn.—p. 522.
Spontaneous Gangrene of Scrotum and Penis. W. Linder and M. S. Levitas, Brooklyn.—p. 526.
Cysts of Prostate. A. M. Margold, New York.—p. 529.
Sarcoma of Kidney Simulating Solitary Cyst. P. W. Aschner, New York.—p. 530.
Thrombo-Angiitis Obliterans of Upper Extremity. N. C. Yarlau and D. van Duzen, Cleveland.—p. 532.
Cholecystectomy: Refinement of Technic. R. W. Lagersen, Minneapolis.—p. 534.

Injection Treatment for Varicose Veins. — Stoner believes that in the injection treatment the danger of embolism is undoubtedly underestimated and is to be reckoned with. This accident should be reduced to a minimum by a familiarity with the conditions underlying the disease processes, and one should be prepared to carry out and interpret all the necessary tests essential to proper selection of cases. There is no one ideal solution in use that is always effective or fool proof.

Should a slough result, the author prefers to treat it conservatively, bringing the walls together with adhesive strips after the separation of the necrotic core. Radical excision of the slough should be done only in a hospital operating room. A complete physical examination of the patient and careful preparation of the limb are essential before any injection is attempted. At the present time, however, the author knows of no infallible means of preventing certain serious reactions and even grave disasters that occasionally follow the treatment. Recanalization of injected veins may occur and varicosities may develop from apparently normal veins after injection and will require treatment. All patients, therefore, should be kept under observation for a year or longer.

Differential Diagnosis of Surgical Conditions of Abdomen from Intercostal Neuralgias.—Feldman states that intercostal or parietal neuralgias often mimic acute surgical conditions of the abdomen. Heretofore experienced clinical judgment was the only means of differentiating the two conditions and then not always correctly. Low subarachnoid block causes a relative separation or dissociation of the spinal cord and the ganglionated sympathetic cord for a varying interval. This surgical or diagnostic interval is particularly noticeable in surgical lesions of the upper half of the abdomen. Parietal anesthesia and visceral anesthesia do not appear simultaneously; parietal anesthesia appears before visceral anesthesia and they both appear from below upward. There is therefore an interval which allows time to determine whether the pain is parietal or visceral. The rate of ascension of spinal anesthesia depends on the height of injection of the anesthetizing agent, force of injection, amount of spinal fluid withdrawn and the amount of fluid injected, the physical and chemical nature of the injected agent and the position of the patient before and after injection. Spinal anesthesia as an aid in the differential diagnosis between acute surgical conditions of the abdomen and intercostal or parietal neuralgias should be so induced as to allow of slow ascension of the anesthesia along the spinal cord.

Annals of Otol., Rhinol. and Laryngology, St. Louis

41: 323-650 (June) 1932

Phase Difference of Pressure Between Windows the Essence of Sound Stimulation. M. F. Meyer, St. Louis.—p. 323.
Immobilization of Round Window Membrane: Further Experimental Study. W. Hughson and S. J. Crowe, Baltimore.—p. 332.
*Relation of Histopathology of Nasopharyngeal Neoplasms to Their Radiosensitivity. J. C. Beck and M. R. Guttman, Chicago.—p. 349.
*Underlying Factors in Zinc Ionization Treatment of Middle Ear Infections. D. M. Lierle and R. A. Sage, Iowa City.—p. 359.
*Chondroma of Larynx: Report of Six Cases. F. A. Figi, Rochester, Minn.—p. 369.
Allergy. W. V. Mullin, Cleveland.—p. 387.
Presence of Phagocytic Cells (Histiocytes) in Aural Mucosa. R. A. Fenton, in Collaboration with O. Larsell, Portland, Ore.—p. 393.
Empyema of Petrous Apex: Operation, Recovery. R. Almour, New York.—p. 405.
Concerning Normal Function of Vestibular Apparatus. O. H. Mowrer, Baltimore.—p. 412.
Laryngitis and Tracheobronchitis in Children, with Especial Reference to Nondiphtheritic Infections. T. R. Gittins, Sioux City, Iowa.—p. 422.
Sinus Disease with Bloodstream Infection. J. W. Carmack, Indianapolis.—p. 439.
Pathology of Carcinoma of Larynx. H. B. Graham, San Francisco.—p. 453.
Immediate Postoperative Technic Incident to Caldwell-Luc Operation. W. P. Wherry, Omaha.—p. 460.
Sinus Thrombosis. E. M. Seydell, Wichita, Kan.—p. 466.
Sinusitis in Children. W. B. Davis, Philadelphia.—p. 493.
Mastoiditis in Infants Associated with Gastro-Intestinal Symptoms. H. R. Mulligan, Los Angeles.—p. 501.
Fracture of Larynx: Report of Case. C. T. Uren, Omaha.—p. 513.
*Adenoids and Upper Respiratory Disease (Common Cold) in Adults. W. M. Gafafer, Baltimore.—p. 517.
*Deafness, Hepatic Dysfunction, Pancreatic Insufficiency: Clinical Entity. M. J. Gottlieb, New York.—p. 523.
Pulmonary Abscess Following Tonsillectomy. I. Frank, Chicago.—p. 550.
Brain Abscess with Peculiar Bacteriologic Findings. W. E. Grove, Milwaukee.—p. 555.
Mixed Tumor of Nasal Septum. H. N. Stevenson, New Rochelle, N. Y.—p. 563.
Treatment of Automobile Accident Cases Where Nose and Face Are Involved. W. W. Carter, New York.—p. 571.
*Method for Control of Postnasal Hemorrhage. J. Beavis, Ann Arbor, Mich.—p. 576.
Otomycosis: Clinical Consideration. W. J. Bristow, Columbia, S. C.—p. 578.

Histopathology of Nasopharyngeal Neoplasms.—Beck and Guttman call attention to two relatively newly described types of malignant epithelial neoplasms of the nasopharynx; namely, epithelioma and transitional cell carcinoma. These growths are characterized by a specific unique histology, a small and frequently undetectable primary lesion, early cervical metastasis and pronounced radiosensitivity. The biologic properties of these neoplasms contraindicate surgical intervention, while their radiosensitivity renders them especially suited for treatment by irradiation.

Zinc Ionization Treatment of Middle Ear Infections.—Lierle and Sage believe that the possibility of the deposition of metallic zinc in living tissue is remote and open to question. The spectroscope is particularly adapted to the detection and estimation of small amounts of zinc in tissue. The use of small electric currents in the treatment is of doubtful value so far as the bactericidal effects of such currents are concerned. The authors have studied the value of zinc sulphate as a bactericide. They consider that the beneficial effects of zinc ionization treatment in middle ear infections are probably due primarily to the destruction of bacteria by the zinc sulphate; the effect of the current is of slight importance.

Chondroma of Larynx.—According to Figi, the treatment of chondroma of the larynx depends on the situation of the growth, its size, the character of its attachment to the laryngeal cartilages and its activity. The usual benign character of these tumors amply justifies decided conservatism. Laryngectomy is indicated only in case the growth is so extensive that its complete removal would leave a nonfunctioning, collapsed larynx. Adherence to a conservative policy is likely to result in secondary operative procedures becoming necessary in an occasional case, but with the possibility of preserving laryngeal function this risk seems well worth assuming. Removal by indirect laryngoscopy, peroral endoscopy or under suspension is feasible in cases in which the tumor is small and pedunculated or attached to the epiglottis. In the majority of the cases laryngofissure and enucleation of the growth, together with its capsule, is the treatment of choice. This procedure is especially satisfactory in dealing with tumors in the subglottic region, particularly in the posterior portion. In three of six cases of chondroma of the larynx reported by the author, the patients were treated in this manner with entirely satisfactory results. In cases in which a fairly large tumor is situated in the supraglottic portion of the larynx, subhyoid pharyngotomy may offer more satisfactory surgical approach. Preliminary tracheotomy may be advantageous with any method of operative treatment, especially if the tumor is producing respiratory obstruction. The procedure is advisable in cases in which laryngectomy is required, as the operation can then be carried out more safely as a secondary stage. In some of these cases it has been deemed advisable to observe the tumor during the course of weeks or months in order to determine its activity before deciding on the type of treatment. Obviously an actively growing tumor will require more radical measures than one of the same size but of slower growth. In the latter instance it might be possible to enucleate even a large neoplasm, whereas in the former laryngectomy would probably be required.

Adenoids and Upper Respiratory Disease.—Gafafer observed a group of 317 adults for thirty-five weeks from Sept. 29, 1929, to May 31, 1930, when an effort was made to secure reports of all attacks of upper respiratory disease (common cold). Of these adults, 235 showed adenoids and 82 did not. The group with adenoids present and the group with adenoids absent showed no significant difference in respect of (1) frequency, (2) severity or (3) type of attack of upper respiratory disease.

Deafness, Hepatic Dysfunction, Pancreatic Insufficiency.—Gottlieb describes a condition that may be termed "aurohepaticopancreatic syndrome," the cardinal symptoms of which may be listed under three headings: (1) cranial (tinnitus, progressive loss of hearing, vertigo, falling, headache [migraine], and blurring of vision); (2) digestive (constipation, occasionally diarrhea, belching, pyrosis, flatulence, fulness and discomfort after eating), and (3) general (fatigue). The positive objective signs are lowered basal metabolic rate, increase in the number of small lymphocytes in the blood, increased indican in the urine and a definite abnormality in the duodenal fluid, which is manifest by a reduction in the amount of cholesterol, furfural number, and alcohol soluble and alcohol insoluble bile pigments. Traces and total absences of these are frequently recorded. In addition to this, there is a reduction in the digestive activity of the pancreatic ferments, the lipolytic element being most often depressed.

Method for Control of Postnasal Hemorrhage.—According to Beavis, the technic and apparatus used in the Department of Otolaryngology, University of Michigan, for the control of postnasal hemorrhage is as follows: A Morrison frame is attached to the patient's bed in the usual manner. A firm dry gauze postnasal tampon is prepared and around its middle a piece of woven silk such as that used in maxillofacial surgery is snugly tied. A well lubricated medium-sized urethral catheter is passed through the left common meatus of the nose down into the nasopharynx and out through the mouth. The free end of the woven silk carrying the tampon is tied to the end of the catheter protruding from the mouth, and by retraction of the catheter the postnasal tampon is pulled firmly back into the nasopharynx, with the free end of the silk emerging from the left naris Another piece of silk is tied to the strand coming out of the nose and led over a pulley fixed to the frame of the bed. Light weights are attached to the silk line to produce a constant tension on the pack in the nasopharynx. The pull on the tampon can be readily adjusted by changing the weights. By this method constant firm pressure sufficient to control hemorrhage can usually be maintained within the postnasal space, though the patient is free to move the head in all directions. It likewise obviates the necessity of anchoring the silk line carrying the tampon to some part of the head, a procedure that is often painful through injury to the ala or upper lip.

Annals of Surgery, Philadelphia

95: 801-967 (June) 1932

*Acute Intestinal Obstruction: Analysis of Two Hundred and Sixty-Six Cases Treated in Los Angeles County General Hospital. I. J. Vidgoff, Los Angeles.—p. 801.

*Acute Intestinal Obstruction at New York Hospital: Report of Two Hundred and Thirty-Five Cases N. W. Cornell, New York.—p. 810.

Acute Intestinal Obstruction: Report of One Hundred and Eighty-Five Cases Treated in Lebanon Hospital of New York City. I. I. Koslin, New York.—p. 821.

*Acute Intussusception, with Especial Reference to Treatment by Resection of the Intestine: Observations on Thirty-Four Cases Admitted to Children's Hospital in Philadelphia. F. R. Robbins, Philadelphia. —p. 830.

*Massive Resections in Acute Mechanical Intestinal Obstruction. J. C. Owings and I. H. Smith, Baltimore.—p. 840.

*Congenital Duodenal Adhesions. H. E. Knox, Philadelphia.—p. 850.

Strangulation of Sigmoid Flexure by Pedicle of Ovarian Cyst. F. C. Beall, Fort Worth, Texas.—p. 854.

Treatment of Ileus as Indicated by Clinical Experience and Experimental Studies. J. J. Morton, Rochester, N. Y.—p. 856.

Lymphosarcoma of Small and Large Intestines. A. Ullman and B. S. Abeshouse, Baltimore.—p. 878.

Complications Associated with Major Proctectomy. A. O. Whipple, New York.—p. 916.

Acute Intestinal Obstruction.—Vidgoff believes that the mortality of intestinal obstruction can be reduced only when the patient is operated on early. The patient is often as much at fault as the physician. The clinical picture is not always clear, and operation should not only be advised but insisted on on suspicion that intestinal obstruction is present. To wait for the full clinical picture to develop will greatly reduce the patient's chances for recovery. Adhesions are the commonest cause of obstruction. To eliminate these cases it is necessary to operate for acute appendicitis early and to peritonealize raw areas fully in pelvic operations. While the "flat plate" roentgenogram is a distinct aid in urging the surgeon to operate, it is not essential in the diagnosis. In the cases studied by the author there was apparently little change in the blood chlorides in those patients who died in comparison to those who recovered. Patients did not do better with the administration of hypertonic solution of sodium chloride than of physiologic solution of sodium chloride. The important factor was the fluids supplied. Enterostomies do not lower the mortality except in some cases of adynamic ileus. If enterostomies are done, one should drain the intestine on the table by cutting it rather than using a catheter. When there is interference with the blood supply to the intestine, it is best to empty the contents of the intestine while the patient is on the table.

Acute Intestinal Obstruction.—In Cornell's series of 235 cases reported under the diagnosis of acute intestinal obstruction, the mortality was 51.48 per cent. The average age of the patients was 32 years. There were 118 males and 117 females. The average duration of symptoms before treatment was 3.9 days. Plain roentgenograms are helpful in early diagnosis of acute obstruction to the intestine. There were 218 operations, 17 cases in which operation was not performed, and 49 secondary operations, with an operative mortality of 58.4 per cent. Previous abdominal operations are a definite etiologic factor for later obstruction, especially in the band group of cases. The duration of obstruction before surgical correction is an important factor in the prognosis. The more severe surgical procedures, such as resections, gave a higher mortality than the cases in which it was only necessary to release the obstruction by cutting a band. Primary enterostomy gives a higher mortality rate than a combination of all the other surgical procedures. The author's statistics agree closely with statistics compiled thirty years ago and also with those of today.

Acute Intussusception.—According to Robbins, the surgical treatment of intussusception can be divided into three groups: (1) easily reducible, in which no further surgical treatment is indicated; (2) the irreducible, without gangrene, in which the author recommends the operation suggested by Brown or the modification suggested by Johnson, and (3) the irreducible and gangrenous, in which he recommends resection and immediate anastomosis. Successful resection for intussusception is not so rare as is generally believed and probably should be done more frequently before the intestine is subjected to too much trauma. The author reports a case which, from his search of the literature, seems to be the most extensive successful resection for gangrene in intussusception yet reported in a child aged 7 weeks.

Massive Intestinal Resections.—Owings and Smith describe experiments in which they demonstrated that massive resections of the intestine are feasible on very sick animals, giving a low mortality rate if done quickly and with careful technic. The point at which resection is safe can be determined with a fair degree of accuracy if certain principles are adhered to. The best things to judge by are, first, the ability of the intestine to contract when mechanically stimulated; that is, not only ability to contract but to contract completely, go into actual spasm. This spasm is readily induced by tapping the intestine with a clamp or pinching it or plucking it with the finger. It is important to notice whether the intestine at the height of its contraction comes down to the size that one would expect normal intestine to reach under similar stimulation, because this helps to determine the degree of edema, which is the best expression of the early reaction of the intestine to obstruction. The circulation of the intestinal wall and the mesentery is highly important. There should not be any edema of the mesentery, and pulsations should be clearly seen and felt in the mesenteric vessels. The circulation in the intestinal wall itself is best determined by its color during both spasm and relaxation. During relaxation, a point should be picked where the color of the intestinal wall changes from the dusky, nonglistening color of damaged circulation to a point as near the normal pinkish glistening color as possible. This point is hard to determine, as the change is a gradual one and the normal color is never actually reached. One has to be governed by the comparison and by experience, together with the other points brought out. The wall at the point of resection when in the spastic stage should be nearly white, showing that the capillaries are not thrombosed, since the blood is expressed from them by the force of the contraction. In obstructed intestine when the circulation is damaged and there is beginning gangrene, even though the intestine will contract it remains rather dusky, probably because of thrombosed capillaries.

Congenital Duodenal Adhesions.—Knox calls attention to the fact that congenital duodenal adhesions are an important clinical entity having a definite train of symptoms and should be borne in mind particularly by those called on to operate on infants. Though the cause of congenital duodenal adhesions has received investigation, no one seems to have advanced a theory that adequately explains their formation. The adhesions may be the result of infection which originates from intrauterine sources, traveling through or along the umbilical vessels, falciform ligament or portal vein to the under surface of the liver or subhepatic fossa. The adhesions in six cases reported by the author all extended from the anterior surface of the duodenum to the under surface of the liver in close proximity to the gallbladder. The duodenum was pulled upward and to the right, producing definite kinking. The portion proximal to the adhesions was distinctly dilated, and, as the adhesions were severed, the gas was seen to pass into the distal portion. The stomach was dilated in each instance and this dilatation also was relieved after the adhesions were separated. The symptoms of congenital duodenal adhesions are so similar to those of hypertrophic stenosis that one is led to this as a diagnosis; and when at operation no stenosis is found, one should explore the subhepatic fossa for the presence of adhesions. The chief subjective signs are vomiting, constipation and loss of weight in a fretful, hungry and dehydrated infant, while objectively there are visible gastric peristalses. The vomiting occurs immediately after birth. In the early stages liquids are rejected almost as soon as they are swallowed, while as time goes on, the stomach becoming dilated, vomiting does not occur for some time after feeding and then may become cumulative as well as projectile. Bile is usually absent in the vomitus in the early stages, but a small amount may pass the obstruction and then the vomitus will be bile-stained. The lack of absorption accounts for the constant hunger, the persistent constipation and the progressive emaciation and dehydration. As the stomach dilates and the loss of weight continues, gastric peristaltic waves become visible. Commencing in the left hypochondriac region, they pass across the epigastrium, culminating at the pyloric region. Occasionally, the waves may pass beyond, becoming lost under the liver. Since the stomach dilates slowly, early regurgitation rather than projectile vomiting is the rule. Roentgen examination is not essential for a diagnosis, and may, in fact, be misleading. The treatment of congenital adhesions of the duodenum is surgical and should be instituted before dehydration sets in and loss of weight occurs.

Archives of Dermatology and Syphilology, Chicago

25: 987-1191 (June) 1932

Pleomorphism and Variation in Dermatophytes. C. W. Emmons, New York.—p. 987.
*Multiple Basal Cell Epitheliomas Originating from Congenital Pigmented Basal Cell Nevi. R. Nomland, Chicago.—p. 1002.
*Tuberculosis Cutis: Unusual Case. O. L. Levin and J. A. Tolmach, New York.—p. 1009.
Effect of Position of Inoculum on Growth of Some Trichophytons in Presence of Dyes. L. H. Leonian, Morgantown, W. Va.—p. 1016.
*Xanthoma Tuberosum. S. M. Weingrow, New York.—p. 1021.
*Modern Interpretation of Mycotic Infections of Feet and Hands. A. Strickler, E. A. Ozellers and R. P. Zaletel, Philadelphia.—p. 1028.
Triethanolamine: Adjunct to Dermatologic Therapy. M. T.-R. Maynard, San José, Calif.—p. 1041.
Fungus Infections of Skin and Its Appendages Occurring in Porto Rico: Clinical and Mycologic Study. B. M. Kesten, B. K. Ashford, R. W. Benham, C. W. Emmons and M. C. Moss, New York.—p. 1046.
*Self-Sterilization Powers of Skin: II. Body Folds. T. Cornbleet, Chicago.—p. 1058.
Folliculitis Ulerythematosa Reticulata. H. G. Wertheimer, Pittsburgh.—p. 1060.
*Simple Method of Treating Mucous Retention Cysts of Lip. S. Monash, New York.—p. 1063.
Bismarsen in Treatment for Congenital Syphilis. S. O. Chambers and G. F. Koetter, Los Angeles.—p. 1065.
Spinal Fluid in Syphilis: Clinical Significance of Total Protein and Globulin: Preliminary Report. L. Spiegel, New York.—p. 1071.
The Henal Vacuum Vaporizer: Instrument Useful in Treatment of Certain Mycotic and Pyogenic Cutaneous Diseases. A. Strickler, Philadelphia.—p. 1097.

Basal Cell Epitheliomas.—Nomland describes a case in which epitheliomas arose in adult life from pigmented basal cell nevi present since birth. No cases identical with the one reported were found in a fairly thorough search of the literature. The closest similarity found was in two cases reported by Adamson and in others of multiple basal cell epitheliomas of the face not arising in keratoses. The lesions described varied from small translucent papules to large rodent ulcers, but they did not arise in preexisting nevi as in the author's case.

Tuberculosis Cutis.—Levin and Tolmach report an unusual case of tuberculosis cutis occurring in a person with tuberculosis of the lungs and of the left mastoid bone. The cutaneous lesions were very superficial and relatively benign in their course. The diagnosis was made partly on the basis of the clinical appearance of the lesions and positively by the histologic examination and the recovery of the tubercle bacilli after inoculation of a guinea-pig. Difficulty was encountered in differentiating this condition from other cutaneous diseases, particularly from Boeck's sarcoid. The authors believe that the pathogenesis of these lesions is dependent on an attenuated form of the tubercle bacillus.

Xanthoma Tuberosum.—Weingrow presents a case of xanthoma tuberosum with extensive involvement of the tendons, in which the planum variety of lesion was also seen. The sugar, cholesterol and nonprotein nitrogen contents of the blood of this patient were higher than those found in the normal person. The presence of the same type of lesion in the tendons of a brother and of other relatives, a negative Wassermann reaction of the blood and the absence of evidence of other infectious diseases suggest an hereditary tendency. The characteristics of xanthoma as exhibited by xanthoma cells, fibroblastic reactions, deposits of lipoid material, degenerated muscle cells and the resemblance to a malignant condition are presented in the histopathologic studies. Chemical analysis of the blood in two of three additional cases observed by the author revealed cholesteremia, glycemia and a rise in the nonprotein nitrogen. The last has not heretofore been reported in connection with this disease. In two of the cases there was no rise in the sugar content of the blood above normal, and the urine was free from sugar. In three of the cases, including two of those previously mentioned, there was definite evidence of arteriosclerosis. The relation between arteriosclerosis and xanthoma tuberosum has not been observed heretofore. In the third case, there were hypertension and nephritis, primarily, and diabetes secondarily related to the xanthoma tuberosum.

Mycotic Infections of Feet and Hands.—Strickler and his associates say that mycotic infection of the feet, in the light of the new conceptions, can no longer be regarded as only a local skin condition. The lesions of epidermophytosis of the feet are to be regarded as local foci, from which, under certain conditions, absorption of toxic substances (fungous, metabolic or both) can take place. These substances are dermatotropic, acting as skin-sensitizing agents and assuming a rôle in the causation of various secondary (mycid) eruptions. Comparable to this trichophyton fungus phenomenon, mention can be made, for instance, of bacteria that, locked up in various organs, act as local foci of infection and are at times an important etiologic factor in such dermatologic diseases as chronic urticaria, erythema nodosum and erythema multiforme. To a degree, considerable similarity exists in origin and behavior between the secondary cutaneous conditions due to ringworm fungus (epidemophytids and trichophytids) and certain of the tuberculids and secondary syphilitic eruptions. In trichophyton fungus infections in man and in experimental trichophyton fungus infections in animals, ringworm fungi have been found in the blood stream. It appears more than probable that the fungi in the human infections are destroyed rather quickly and early, possibly in the lymphatic channels or in the lymph nodes, and that their main function probably consists in augmenting in some manner the cutaneous sensitizing influence of the hyphomycetic products. That the lymphatic channels can shield and transport ringworm fungi is paralleled by a similar relationship known to exist between the lymphatic vessels and spirochetes. The authors draw the following deductions from a survey of the literature and additional experiments that they cite: 1. In the treatment for the chronic recurrent epidermophytosis of the feet and epidermophytid eruptions of the hands, desensitization of the skin through trochophytin therapy would seem a logical procedure. 2. There is urgent necessity of some form of cutaneous test of just sufficient sensitivity to serve as a reliable and specific diagnostic aid in the etiologic determination of the various squamous and vesicular eruptions of the hands and lichenoid eruptions of the extremities. 3. Complement fixation or related serologic studies are advisable as a means of shedding more light on the nature of the sensitizing influence of the mycotic infections of the feet, and possibly also as a diagnostic procedure.

Self-Sterilizing Powers of Skin.—Cornbleet describes experiments in which he noted that skin folds are less able to inactivate micro-organisms than are other normal cutaneous areas. Their self-sterilizing capacity is still further depressed whenever they become the seat of a pathologic disturbance. When skin folds are opened to the air, their capacity to inactivate staphylococci tends to approximate that of other normal skin areas. This tendency is a function of time; the longer the fold remains open, the closer is the approximation. The total number of organisms inactivated in a closed skin fold bears little relation to time.

Mucous Retention Cysts of Lip.—Monash reports that in the treatment of mucous retention cysts of the lip he has been using a method different from those described, and which can be performed in a physician's office in a few minutes. With the cutting current of an endothermy apparatus, preferably, or with a scalpel, an incision is made through the oral mucosa and into the cyst cavity at one end The cutting instrument is passed round the entire margin of the cyst cavity, thus removing a more or less circular mass of tissue, consisting of the roof of the cyst, made up of the oral mucosa and a portion of cyst membrane No attempt is made to cauterize the floor of the cyst In fact, cauterization is contraindicated in this procedure, as it would substitute a raw surface for one already covered with epithelium No suturing is necessary, and healing is rapid Recurrence does not take place, because any mucus secreted by the floor of the cyst is not retained in a closed cavity but passes directly into the mouth. In time the character of the cyst floor changes to that of normal oral mucosa The author has used the same procedure in the treatment of a hydrocystoma, 0.5 cm in diameter, situated near the outer canthus of the left eye By merely removing the roof of the cyst, including the overlying skin, a complete disappearance of the lesion was obtained, within a few weeks no difference could be observed between the character of the cyst floor and that of the surrounding skin

Canadian Public Health Journal, Toronto

23: 203-252 (May) 1932

Cancer at Home and Abroad J W S McCullough, Toronto—p 203
Prevention of Dementia Praecox and Treatment of Early Stage T A Pincock, Brandon, Manit—p 209
Pitfalls in Diagnosis of Early Syphilis N Black, Toronto—p 213
Tastes and Odors in Public Water Supplies N J Howard, Toronto—p 218
The Trachoma Problem F D McKenty, Winnipeg, Manit—p 223
Control of Diphtheria in Lethbridge R B C Thomson, Lethbridge, Alta—p 232
Report of Committee on Definition of Word "Stillbirth" for Statistical Purposes E Gagnon, Montreal—p 234

Delaware State Medical Journal, Wilmington

4: 119-140 (June) 1932

*Diagnosis and Treatment of Carcinoma of Large Intestine W W Babcock, Philadelphia—p 119
Injection Treatment of Hemorrhoids C C Neese, Wilmington—p 122
Relations of Delaware Public Health to Indigent Syphilitic Cases A C Jost, Dover—p 124

Diagnosis and Treatment of Carcinoma of Large Intestine.—According to Babcock, carcinomas of the large intestine should be diagnosed early by alterations of the peristaltic function, digestive disturbance, progressive anemia, and by roentgen, digital and proctoscopic examinations Offensive, bloody, mucous stools, intestinal obstruction or cachexia usually indicates a growth of long standing Operative excision, if the growth is not too far advanced, gives a reasonable hope for recovery. Irradiation is ineffective against most of the intestinal carcinomas. From the ileum to the descending colon, an intraperitoneal excision and anastomosis, with careful attention to the preservation of the blood supply of the retained intestine, is the preferred type of operation From the descending colon to the lower rectum a combined abdominoperineal operation is indicated, followed by radical removal of the intestine with the tributary lymphatics, as well as the preservation of an adequate circulation for the retained intestine. The author describes a method of abdominoperineal resection by means of which colostomy is eliminated and the intestine is not divided or invaded until after the peritoneal cavity is sealed. With the higher rectal growths, the sphincter may be preserved; but with the lower ones, a wide resection of the pelvic floor may be necessary. In ten cases in which this operation was used, less shock and reaction followed than after any other type of operation tried For the small, low-lying rectal carcinomas, with slow infiltrative tendencies, a local excision through the enlarged anus may be adequate The advantages of a properly made perineal anus should be evident. It may be cared for with less derangement of the clothing than a colostomy, and it is easily controlled by a pad and rubber sponge pressure. The perineal opening also more surely gives warning of an impending defecation than does the colostomy, and by digital examination one may obtain early evidence of a recurrence in the pelvis at a time when excision or local destruction is effective. All patients observed by the author have considered their perineal anus preferable to a colostomy.

Georgia Medical Association Journal, Atlanta

21: 217-259 (June) 1932

Review in Traumatic Surgery J M. Barnett, Albany—p 220
*Transurethral Prostatic Resection Versus Operative Prostatectomy. E Floyd and J L Pittman, Atlanta—p 226
Hypoglycemia Case Report. E D Shanks, Atlanta, and E W. Allen, Milledgeville—p 229
Diverticulum of Bladder S T. Brown, Atlanta—p 232
Indications for and Results of Removal of Spleen D. H. Poer, Atlanta—p 233

Transurethral Prostatic Resection Versus Operative Prostatectomy.—Floyd and Pittman feel that transurethral prostatic resection is definitely indicated in some cases of vesical neck obstructions. This is particularly true in the median bars, when there is a fibrous band across the neck of the bladder. In the glandular bars, that is, the solitary posterior commissural hypertrophies, resection is ideal. The entire median lobe can be resected out, leaving an avenue sufficient to empty the bladder. In carcinoma in which the condition is too far advanced when the diagnosis is made to bring about a cure, resection is of temporary value in relieving the obstructions, so that the bladder can be emptied, obviating the necessity for a suprapubic tube. The authors have been advocates of the suprapubic tube in these cases for some time and, owing to its many drawbacks, they are now glad that in these cases the patients can be temporarily relieved without it. In the moderately enlarged and early prostatic hypertrophy this procedure is of definite value, because the back pressure changes in the kidneys and bladder are not far advanced. The authors do not feel that resection can take the place of operative prostatectomy for the markedly enlarged prostates. In this type of case they intend to continue with the usual method of prostatectomy. Finally, they emphasize that this is not a simple procedure, for it requires not only a thorough knowledge of the anatomy and pathology of the posterior urethra but also skill and experience in manipulation of the resectoscope.

Indiana State Medical Assn. Journal, Fort Wayne

25: 245-292 (June) 1932

Speech Defects in Children Gladys D Frith, South Bend—p 245.
Brief Survey of Medical History of Indiana M. D Barber, Indianapolis—p 250
Shock J K Berman, Indianapolis—p 256
The Swings of the Pendulum During Fifty Years in Medicine H E Mock, Chicago—p 260
Spinal Anesthesia H C Ragsdale, Bedford—p 266
Heart Disease in Pregnancy. E O. Asher, New Augusta—p 267.

Johns Hopkins Hospital Bulletin, Baltimore

50: 357-405 (June) 1932

*Pathology of Nineteen Cases of Peculiar and Specific Form of Nephritis Associated with Acquired Syphilis A R Rich, Baltimore—p 357
*Hyperthyroidism and Diabetes Mellitus E C. Andrus, Baltimore—p 383

Nephritis Associated with Syphilis.—Rich describes a peculiar and heretofore unrecognized but not uncommon form of nephritis associated with acquired syphilis. It was found in 6.5 per cent of 200 necropsies in which there were definite syphilitic lesions in other organs, and in five additional cases in which no other syphilitic lesions were found at necropsy but in which there was definite clinical proof of the existence of syphilis (positive Wassermann reaction). Although diligently searched for in 400 control necropsies, in no instance was the lesion found in the absence of syphilis. The author presents evidence that the lesion represents a true *syphilitic* nephritis and discusses the relation of the process to clinical nephritis occurring during the course of syphilitic infection.

Hyperthyroidism and Diabetes Mellitus.—Andrus presents the clinical courses of two patients in whom diabetes mellitus and hyperthyroidism coexisted. The carbohydrate metabolism in hyperthyroidism is contrasted with that in diabetes mellitus. In the presence of hyperthyroidism this is at fault less as regards the ability of the organism to store carbohydrate than in the abnormally rapid breakdown of glycogen. The diabetic patient, on the other hand, suffers from a limited carbohydrate tolerance; carbohydrate administered in excess of this appears in the urine as dextrose. Hyperthyroidism superimposed on diabetes mellitus creates abnormal demands on an already inefficient carbohydrate metabolism by augmenting the basal metabolic rate and by enhancing glycogenolysis.

Journal of Immunology, Baltimore

22: 397-475 (June) 1932

Immunization of Chimpanzees with Human Blood. K. Landsteiner and P. Levine, New York.—p. 397.
*Anaphylaxis to Diphtheria Toxin: Sensitization by Placental Transmission of Antitoxin. J. Y. Sugg, L. V. Richardson and J. M. Neill, Nashville, Tenn.—p. 401.
Immunologic Studies in Tuberculosis: VII. Resistance of Chickens Sensitized with Heat-Killed and Living Avian Tubercle Bacilli. S. A. Petroff, W. Steenken, Jr., and W. A. Winn, New York.—p. 413.
Purification and Concentration of Diphtheria Toxoid by Means of Electrodialysis. L. Reiner, New York.—p. 439.
Studies on Antibodies: VI. Dried Antimeningococcus Serums. K. G. Falk, Grace McGuire and Carolyn Rosenstein, New York.—p. 445.
Dissociation of Specific Protein Precipitate of Antipneumococcus Horse Serum, and Comparison with Protein Isolated by Chemical Means from This Immune Serum. L. D. Felton, Boston.—p. 453.

Anaphylaxis to Diphtheria Toxin.—Sugg and his associates report that the offspring of antitoxin immune guinea-pigs gave anaphylaxis when injected intravenously with toxin-containing material thirty to sixty days after their birth. Sufficient controls were made on the possibility of participation of nontoxin antigens and of nonantitoxin antibodies to justify the conclusion that the anaphylaxis was due to reaction between the toxin antigen and the placentally transmitted antitoxin. The advantage of the use of carefully selected offspring was demonstrated by the high degree of completeness of nonreactivity to nontoxin diphtheria antigens that was exhibited by the offspring of individual mothers whose serum contained no diphtheria antibodies other than antitoxin or only small amounts. Apart from the question of toxin anaphylaxis, the authors' demonstration of anaphylaxis to diphtheria material on the part of the offspring of immune guinea-pigs is of interest as an example of placental transmission of hypersensitiveness to an antigen of bacterial origin.

Journal of Industrial Hygiene, Boston

14: 207-242 (June) 1932

*Results of Supplementing Dietary of Substandard Workers with Cod Liver Oil and Milk. A. D. Holmes and Madeleine G. Pigott, Boston, and W. A. Sayer and Laura Comstock, Rochester, N. Y.—p. 207.
Toxicology of Carbonyls. A. J. Amor, Clydach, England.—p. 216.
*Erysipeloid: Bacillus of Swine Erysipelas Infection: A Disease of Industry. J. V. Klauder, Philadelphia.—p. 222.

Cod Liver Oil and Milk as Dietary Supplements.—Sixty-three underweight young women served as subjects of an investigation conducted by Holmes and his associates to determine whether cod liver oil and milk taken as supplements to the usual home diet of substandard women would improve their health and efficiency. All the women were employed at tasks classified as light muscular activity. Cod liver oil of known history and high grade commercial milk were ingested in the forenoon and afternoon rest periods. A daily record was made of attendance and the cause of previous absences and illness. Weekly records were made of body weight and efficiency rating. It was noted that the use of cod liver oil and milk as supplements to the usual home diets of the substandard young women was followed by an increase in body weight, a decrease in absences from employment, an increase in efficiency rating, and an improvement in the menstrual irregularities experienced by some of the women. It is therefore apparent that the addition of cod liver oil and milk to the usual home diet contributes materially to the well being and efficiency of underweight young women dependent on their ability to work for a livelihood.

Erysipeloid.—Klauder calls attention to the fact that the bacillus of swine erysipelas is widely disseminated; its habitat is dead matter of animal and plant origin. The organism is either pathogenic or saprophytic throughout the animal kingdom. In swine, which are more frequently infected than are other animals, it causes an infection known as swine erysipelas. In man, the mild form of the infection is most common, occurring at the site of injury, invariably on the hand, and appearing as a purplish red erythema of a migratory character. Pain and swelling frequently cause incapacitation. The disease may spontaneously involute in from two to four weeks. In exceptional cases it extends above the wrists and persists for weeks and sometimes months. The acute fatal form and the arthritic form of the disease in man are rare. The infection is common among commercial fishermen working in fishpounds, handling live fish. It intimately concerns handling spiny fish as well as slimy fish. Spiny fish increase the incidence of trauma of the hands, which serve as a means of inoculation. In all probability the organism is a saprophyte on the slime of fish. The infection is an important disease of the fishing industry. The disease also occurs among employees in the meat packing and canning industries, among food handlers, and among workers in industries in which living or dead animal matter is handled. Local treatment is of no great value. Immobilization of the part and application of heat are the methods generally advocated. The most satisfactory treatment, in the author's experience, however, is the local injection of immune serum.

Journal of Pharmacology & Exper. Therap., Baltimore

45: 121-251 (June) 1932

Bacteriologic Action of Certain Synthetic Organic Acids Toward Mycobacterium Leprae and Other Acid-Fast Bacteria: XXI. W. M. Stanley, G. H. Coleman, C. M. Greer, J. Sacks and R. Adams, Chicago.—p. 121.
Vanillyl-Ethylamine, Vanillyl-Methylamine and Benzyl-Vanillylethylamine: Relation of Chemical Structure to Pharmacologic Action. W. E. Hambourger, Cleveland.—p. 163.
Relation of Size of Ergot to Potency. B. V. Christensen and A. D. Welch, Gainesville, Fla.—p. 183.
Contribution to Pharmacology of the Benzothiazoles. M. T. Bogert and Helen G. Husted, New York.—p 189.
Influence of Diet on Carbon Tetrachloride Intoxication in Dogs. Jessie T. Cutler, Nashville, Tenn.—p. 209.
Production of Gastric Lesions in Rabbits by Injection of Small Amounts of Pilocarpine into Cerebrospinal Fluid. R. U. Light, C. C. Bishop and L. G. Kendall, Boston.—p. 227.

Journal of Urology, Baltimore

27: 607-731 (June) 1932

*Aneurysm of Renal Artery. C. P. Mathé, San Francisco —p. 607.
*Value of Intravenous Pyelography in Management of Ureteral Calculi: Based on Study of Forty-Five Cases. R. L. Dourmashkin, New York. —p. 637.
*Effect of Renal Denervation of Pressure of Urine in Renal Pelvis. J. M. McCaughan, Rochester, Minn.—p. 659.
Neoplasms Primary in Bladder Diverticula. R. M. LeComte, Washington, D. C.—p. 667.
Malignant Tumor of Diverticulum of Urinary Bladder. H. L. Stewart and G. J. Muellerschoen, Philadelphia.—p. 685.
Myxosarcoma of Bladder: Case Report of Child Two Years of Age. J. A. Lazarus and A. A. Rosenthal, New York.—p. 695.
Chronic Cavernitis and Spongiositis Due to Diphtheroid Bacillus. G. Sewell, J. A. Kasper, J. F. Norton and Normal H. Broom, Detroit. —p. 713.
Heat in Treatment of Prostatic and Seminal Vesicular Affections: A New, Metal, Two-Way Rectal Tube and Exposition of Reasons, in Use of Heat, for Preferring Hot, Saline, Rectal Irrigations Through Two-Way Tube. M. L. Boyd, Atlanta, Ga.—p. 719.

Aneurysm of Renal Artery.—Mathé reports a case of true aneurysm of the renal artery associated with nephrolithiasis. The aneurysm was secondary to trauma and was successfully relieved by nephrectomy. Aneurysm of the renal artery is an extremely rare condition, only fifty-six cases having been reported to date. In 40 per cent of fifty-five cases reviewed there was a history of weakening and injury of the vessel wall by previous trauma, and in the remainder a history of severe infectious disease of some type, producing lowered resistance due to sclerosis, fatty degeneration, or inflammatory changes of the renal artery. Aneurysm of the renal artery is exceedingly difficult to diagnose, only seven of the reported cases having been detected prior to the time of operation or death. The cardinal symptoms are hematuria, pain and tumefaction. This hematuria is usually more sudden and more extensive than that caused by other kidney lesions. Pulsation and systolic bruit, although rare, are pathognomonic signs. The presence of a ring-shaped opaque area in the kidney should make one suspect renal aneurysm. The treatment of renal aneurysm is surgical. In all the untreated cases, thirty-six of which have been reported in the literature, the patients died Sixteen of the seventeen on whom nephrectomy was performed survived Resection of the aneurysm is occasionally possible Plastic repair of the aneurysmal sac, drainage of the accompanying hematoma, and other surgical procedures less radical than nephrectomy or excision give little, if any, relief

Value of Intravenous Pyelography—Dournashkin states that in the presence of apparently complete calculous obstruction of the ureter, intravenous pyelography frequently supplies the only medium for ascertaining renal function on the affected side In the greatest majority of chronic ureteral stone cases observed by the author, intravenous pyelography demonstrated perfect renal drainage In many cases little difference was noted in the outlines of ureteropelvic tracts on both sides The presence of impassable obstruction is not a criterion that determines complete impaction as in many such cases perfect drainage was revealed by intravenous pyelography The temporary nature of absent ureteropelvic shadows, following the injection of the dye in cases of acute block and those of chronic renal hibernation,' should be constantly borne in mind lest it should be confused for instances of permanent renal destruction in which cases the dye may be similarly not excreted Intravenous pyelography is of no value in localizing uric acid calculi In no case should a patient be submitted to an open operation unless its indications are clearly defined by intravenous pyelography

Pressure of Urine in Renal Pelvis—In the course of certain experiments undertaken for the purpose of studying the pressure of urine in the renal pelves (the so-called secretion pressure) of intact dogs on which bilateral abdominal ureteral transplantation had been performed McCaughan noted that the pressure immediately following simple water diuresis was increased approximately 20 per cent over the maximal pressure obtained under ordinary conditions and only after many minutes of continuous recording The author describes experiments in which he demonstrated that the secretion pressure of the urine following renal denervation is not significantly increased

Medical Journal and Record, New York

135 · 549 592 (June 15) 1932

Brief Review of Modern Proctology with Especial Reference to Treatment for Cancer of Rectum M J Synnott Montclair N J—p 549
Report of Four Allergic Cases Narcisse Thiberge, New Orleans—p 555
Aneurysms of the Circle of Willis Discussion and Two Case Reports R F Elmer and C E Boylan Chicago—p 557
Dental Care During Pregnancy M O Magid New York—p 559
Care of the New Born S Goldberg, Philadelphia—p 562

New England Journal of Medicine, Boston

206 1181-1230 (June 9) 1932

Story of Smallpox in Massachusetts S B Woodward Worcester, Mass—p 1181
Raynaud s Disease T Lewis London England—p 1192
*Id Studies on Postoperative Cases Bearing on Etiology of Disease and Efficiency of Sympathetic Ganglionectomy J C White Boston—p 1198
What Change in the Medical Practice Act Is Most Needed? S Rushmore Boston—p 1211

Raynaud's Disease.—White reports six cases of typical Raynaud's disease, with observations on the immediate and late effects of sympathetic neurectomy Resection of the two upper dorsal ganglions or of the second to fourth lumbar ganglions brought about an immediate paralysis of sympathetic tonus in each case Whereas vasomotor paralysis following lumbar sympathectomy has been permanent, the dorsal operation has been followed by a recurrence of sympathetic nerve function in two out of the six cases reported and in five other cases Sympathetic nerve activity reappeared at the end of six months, accompanied by the color changes, pain, coldness, and ulceration in the tips of the fingers characteristic of Raynaud s disease When the regenerated vasoconstrictor fibers were again adequately blocked by procaine hydrochloride or by reoperation, there was a second disappearance of the manifestations of the disease Therefore, resection of the first and second dorsal sympathetic ganglions alone is insufficient to cause a permanent vasomotor paralysis of the arm In the author's recent cases, in which the operation has been extended upward to include the inferior cervical ganglion, he is hopeful that the results will be as permanent as those in the lower extremity Advanced stages of the disease with long standing ulceration and sclerodermatous changes may fail to recover completely after vasomotor paralysis These instances are satisfactorily explained by Lewis's theory of local pathologic changes in the digital vessels From the theoretical standpoint, early uncomplicated cases of the disease may be explained either on the basis of Raynaud s original conception of a vasomotor neurosis or by Lewis s theory that normal vasoconstrictor impulses cause the attacks of partial asphyxia by acting on abnormal digital arterioles Certain objections have been pointed out against each hypothesis It is therefore essential to reserve final judgment until the evidence in favor of one or of the other becomes unequivocal

New Jersey Medical Society Journal, Orange

29 · 377 444 (May) 1932

Medicine and Sociologic Aspect of Insanity, Feeblemindedness and Antisocial Behavior M Vinciguerra Elizabeth—p 377
Acute Empyema Thoracis V L Johnson Atlantic City—p 382
Newer Anesthesia B B Ranson Jr, Maplewood—p 386
Office Treatment of Diabetes Mellitus Selma Weiss Newark—p 391
Role of Ovarian and Anterior Pituitary Hormones in Sexual and Reproductive Cycles P D Acierno Union City—p 394
Concerning the Serologic Study of Syphilis, with Reference to Some Aspects of Its Clinical Utilization R A Kilduffe, Atlantic City—p 398

29 445 532 (June) 1932

Detachment of Retina Gonin Operation B B Adelman, Newark—p 445
Care of Patient Before During and After Induction of Spinal Anesthesia H Subin Atlantic City—p 450
Etiology and Treatment of Essential Pruritus B M James, Newark and Montclair—p 451
Physician and Workmen s Compensation Act M S Avidan Trenton—p 458
Polyposis of Small and Large Bowel V Farmer, Hackensack—p 463
*Treatment of Early Syphilis N B Heller, Newark—p 468
Diathermy in Eye Ear, Nose and Throat Affections B E Failing Newark—p 470
Relation of Anaphylaxis to Acute and Chronic Disease H E Abel, Newark—p 474
Primary Diphtheritic Vaginitis in Children F P Lee and Anna I van Saun, Paterson—p 477
Symptoms and Diagnosis of Acute Intestinal Obstruction F T van Beuren Jr, New York—p 478
Seasonal Hay Fever with Especial Reference to Middle Atlantic States G T Brown Washington D C—p 481
Practical Phases in Utilization of Clinical Laboratory R A Kilduffe Atlantic City—p 490

Treatment of Early Syphilis—Heller puts all early syphilitic persons on weekly injections of a bismuth preparation giving them a course of twelve injections This is followed by eight weekly injections of 0 3, 0 45 and 0 6 Gm of neoarsphenamine, depending on the patient's weight A watch is kept on the general condition, especially the heart and kidneys, by periodic urinalysis If there are no contraindications, this treatment is kept up for one year without any rest periods With the aid of the social service department, an earnest effort is made to get in touch with all contacts, and they are examined both physically and serologically, and treatment is instituted when necessary The second year, two courses of treatment are given, with rest periods, and periodic serologic examinations after each rest period When blood reports are repeatedly negative, the patient is referred to the medical clinic for a heart examination and to the eye clinic for an ophthalmoscopic examination After a rest of six months, another serologic examination is performed, this time including a spinal tap with a cell count, a Pandy reaction, a Wassermann test and a colloidal gold curve report It is only after all these reports are negative that the patient is discharged, with instructions to come once a year for a check-up

New Orleans Medical and Surgical Journal

84 931 996 (June) 1932

Annual Address S C Barrow, Shreveport, La—p 931
Medical Education in Mississippi J C Culley, Oxford Miss—p 935
Looking Into the Future A Ochsner, New Orleans—p 945
Planning the Plastic Operation of the Face H L Rush and L V Rush, Meridian, Miss—p 948
Technic and Indications for Spinal Anesthesia J G Gardner, Columbia, Miss—p 953
Agranulocytic Angina C L Brown New Orleans—p 959
Etiology and Prognosis of Sinusitis J B Gooch, New Orleans—p 966

New York State Journal of Medicine, New York

32: 707-772 (June 15) 1932

Polycythemia Treated with Phenylhydrazine: Case. T. S. Evans, New Haven, Conn.—p. 707.
Results of One Thousand Aschheim-Zondek Tests for Pregnancy. R. Kurzrok, New York.—p. 711.
Some Considerations in Buying and Installing Fluoroscope for Use in General Practice. C. Auer, New York.—p. 713.
Recurrent Paralytic Intestinal Obstruction: Report of Case of Unknown Etiology. R. A. Leonardo, Rochester.—p. 717.
Latent Pneumothorax. S. I. Muller, Long Island City.—p. 721.

Southwestern Medicine, Phoenix, Ariz.

15: 193-232 (May) 1932

Use and Development of Our Library. O. H. Brown, Phoenix, Ariz. —p. 193.
Treatment of Cavitation in Pulmonary Tuberculosis: Clinical Demonstration. F. G. Holmes, Phoenix, Ariz.—p. 195.
State Health Departments, Their History and Achievements. P. W. Covington, Salt Lake City.—p. 217.
Prophylactic and Early Treatment of Syphilis. J. R. Earp, Santa Fe, N. M.—p. 220.

United States Naval Med. Bulletin, Washington, D. C.

30: 297-470 (July) 1932

Relief Work Following Belize Hurricane. T. L. Morrow and E. F. Lowry.—p. 297.
Malignant Disease of Large Intestine: Report of Four Cases. J. A. Biello.—p. 302.
*Rabies: Report of Four Deaths Resulting from Bites on Fingers by Same Rabid Animal. J. E. Fetherston and G. F. Cooper.—p. 314.
Clinicopathologic Aspect of Pituitary Gland. D. L. Poe.—p. 321.
Pilonidal Cyst. D. J. Wharton.—p. 350.
*Brief Discussion of Digitalis. W. Zur-Linden.—p. 355.

Rabies.—Fetherston and Cooper report four deaths from among eight persons bitten on the hands by the same rabid animal: In all these cases it was not the fear of liquids that was manifested but absolute fear of water. Two characteristic early signs in these cases were vertigo dilatation of the pupils, and numbness either of the side on which the bite occurred or of the whole body. This numbness later changed to a hyperesthesia of the skin all over the body. The authors believe that it is a good treatment to dissect out the scars where the bite occurred, if the patient is seen long after the bite. The four patients who failed to contract the disease were taken to the operating room and all scars and surrounding tissue dissected out as soon as the fourth case began to develop. It is believed that the virus develops at the site of the original portal of entry into the body and that it is gradually disseminated into the system from that point. This treatment is given in addition to cauterization with nitric acid at the time of the bite and administration of antirabic treatment. The need of a short course of treatment is evidenced by the remaining four persons who were bitten. After the death of the fourth patient, three of those remaining began to show leukocyte counts from 12,000 to 15,000, which persisted for a few days, but they had already received nearly half of the course of twenty-five injections, and the authors believe that they established their immunity to the infection just in time to prevent them from contracting the disease.

Digitalis.—Zur-Linden believes that the United States Pharmacopeia does not go far enough when it makes mandatory the biologic assay of digitalis. It should also insist that the manufacturer shall state on his containers the date of manufacture and biologic assay, so that tincture of digitalis used at the bedside will be dependable and will produce definite heart stimulation. The author's past experience would lead him to recommend only the use of the whole leaf tablets that have been stored in amber glass tubes bearing the date of manufacture and biologic assay as determined by the United States Pharmacopeia frog method or Hatcher's cat method.

Wisconsin Medical Journal, Madison

31: 366-427 (June) 1932

Organization of Cancer Clinics in General Hospitals. B. C. Crowell, Chicago; F. L. Rector, Evanston, Ill.; M. Cutler, Hines, Ill., and J. C. Bloodgood, Baltimore.—p. 373.
Impromptu Remarks on Cancer. C. H. Mayo, Rochester, Minn.—p. 383.
Accessory Patella (Bipartita): Duplication of Patella, Developmental Anomaly, May Resemble Patellar Fracture and Predispose to Larsen-Johansson Disease. L. D. Smith, Milwaukee.—p. 384.
Gas Gangrene: Diagnosis and Treatment of Gas Gangrene Complicating Compound Fractures. J. O. Dieterle, Milwaukee.—p. 388.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

29: 83-168 (April-June) 1932

Hemolytic Streptococcus and Scarlet Fever. T. Toyoda, J. Moriwaki and Y. Futagi.—p. 83.
Return Cases of Scarlet Fever and Their Prevention. J. D. Rolleston. —p. 91.
*Speech Defects Apparently Congenital in Origin. I. M. Allen.—p. 98.
Note on Remarkable Blood-Serum Reaction (with Formalin) in a Child. F. P. Weber and E. Schwarz.—p. 117.

Congenital Speech Defects.—Allen discusses the conditions that result in delay in learning to speak and speech defects apparently congenital in origin and describes illustrative cases. He states that delay in learning to speak and speech defects may be produced by disturbances of hearing or of the ability to appreciate the meaning of word-sounds, by conditions leading to defective mental development, or by conditions which prevent the development of normal control over the muscles of articulation. Psychologic situations can produce defects which may be confused, on a superficial examination, with those due to gross organic defects. Further evidence is adduced to show that the fundamental cause of congenital auditory imperception and of its resulting speech defect is probably a bilateral cortical agenesia affecting parts of the cerebral cortex concerned with the interpretation of sounds. The potentially normal mentality of children suffering from this defect is again emphasized. The exact nature of the speech defect can rarely be determined from the study of the speech itself. The final diagnosis is usually made from the study of the individual by both physical and psychologic methods. True idioglossia is associated only with inability to appreciate the meaning of word-sounds, though the speech of imbeciles and of children of poor psychologic development may give the impression that such children are using an individual language.

British Journal of Physical Medicine, London

7: 37-56 (June) 1932

Treatment of Radiating Neuralgiform Pains in Rheumatism. E. Plate. —p. 39.
Kromayer Lamp in Treatment of Lupus. R. Volk.—p. 41.
Therapeutic Uses of New Gas: So-Called Octozone. R. Fawcitt.—p. 43.
Electrocoagulation of Hemorrhoids. W. Bierman.—p. 45.
Spas and Spa Treatment in Europe. M. B. Ray.—p. 47.

British Medical Journal, London

1: 969-1016 (May 28) 1932

*Diagnosis and Treatment of Carcinoma of Colon. C. Gordon-Watson.—p. 969.
Notes on One Thousand Five Hundred Cases of Asthma. J. Adam.—p. 973.
*Occurrence of Polycythemia and Value of Liver Therapy in Asthma. H. H. Moll.—p. 976.
*Mean Temperature in Nonfebrile Hospital Patients. D. M. Lyon and H. L. Wallace.—p. 980.
Carcinomatous Gastrocolic Fistula Simulating Enteric Fever: Case. T. G. Starkey-Smith.—p. 982.

Carcinoma of Colon.—Gordon-Watson calls attention to the fact that in carcinoma of the colon more than half the growths involve the pelvic colon, and in a considerable number of these the diagnosis can be made with the sigmoidoscope. While a probable diagnosis can frequently be made on clinical symptoms and sometimes confirmed by palpation, an absolute diagnosis is more often obtained by roentgen rays. Roentgen rays may be misleading, and certain fallacies must be borne in mind: (1) Feces or gas in the bowel, or air in the enema may give an apparent filling defect; (2) delay at the rectosigmoidal junction or at the junction of the pelvic and descending colons may be nonpathologic, and (3) spasticity may occasionally simulate the filling defect due to a tumor, especially in the distal half: in such instances a further examination is made after the injection of atropine to relieve spasm. The barium meal and the barium enema both have their values. A meal requires repeated observation to visualize a filling defect, whereas an enema visualizes the contour of the colon throughout, or up to the point of obstruction, at one inspection in a much shorter time. The enema, by expanding the colon beyond the normal, emphasizes any irregularity in contour. An ordinary roentgenogram of the abdomen, without the use of barium, may be quite useful in showing distention of some portion of the colon with gas. This is sometimes of great value in assisting diagnosis in cases of acute obstruction, if the patient is not too ill to be examined. In such circumstances an obstruction (for example, in the pelvic colon) may come out quite clearly. It is probable that there are few situations in the body where radical operation for carcinoma offers such promising results, especially in early cases. A wide resection and anastomosis is as a rule not difficult. The lymphatics run with the vessels and converge on the apex of the resected mesentery. Lymphatic spread is usually slow, and if colloid cases are excepted the grade of malignancy of adenocarcinoma of the colon is low. This is especially true of the hypertrophic type. While it is true that in cases favorable for radical surgery the prognosis is good, meticulous care is required for radical surgery to be successful. The blood supply of the colon is not so good as that of the stomach; the contents of the colon are dangerously infective to the peritoneum, and gas distention after resection may be disastrous if there is no safety valve. Risks are far greater than in cases of gastric resection, and statistics from all sources show that the operative mortality rate for resections is high, whereas the ratio of recurrence is low in comparison with gastric resections.

Polycythemia and Liver Therapy in Asthma.—According to Moll, polycythemia frequently occurs in true spasmodic asthma, especially in the allergic type. It is often found after a severe attack, or a series of attacks, and may last for varying periods. Usually after a free interval of a month the count tends to fall to a normal level again. Seasonal variations in the red cell count have also been observed, the count being highest in the summer in the pollen-sensitive cases and in the winter in the infective type of asthma. A fall in the red cell count has been found to correspond with the lessening in the frequency and severity of the attacks and may therefore be considered as an indication of therapeutic improvement. Liver therapy was tested by the author in fifty-three cases of asthma and proved beneficial in 60.3 per cent of the cases. It was found to be most effective in the allergic type of asthma and in those cases showing an initial high red cell count. In the course of liver therapy a fall in the red cell count was observed in those cases which had shown improvement on the treatment.

Mean Temperature in Nonfebrile Patients.—Lyon and Wallace noted that the mean body temperature in a series of 250 nonfebrile hospital patients who were confined to bed was 97.2 F. at 7 a. m. and 97.45 F. at 7 p. m. They suggest that the heavy line marked on clinical thermometers and temperature charts corresponding with the figure 98.4 F. is misleading, since this figure represents the mean temperature in active life and not the upper limit of normality in a patient lying in bed.

Edinburgh Medical Journal

39: *349-408 (June) 1932*

*Studies on Blood and Tissue Reactions: III. Specificity of Tissue and Blood-Reaction. W. F. Harvey and T. D. Hamilton.—p. 349.
Treatment of Chorea by Nirvanol. R. M. Murray-Lyon.—p. 368.
Relation of Hyperfunction of Posterior Lobe of Hypophysis to Eclampsia and Nephropathy of Pregnancy. K. J. Anselmino, F. Hoffmann and W. P. Kennedy.—p. 376.
Preliminary Note on Occurrence of Incomplete Development of Striated Muscle Fiber as Cause of Certain Congenital Deformities of Extremities. D. S. Middleton.—p. 389.

Studies in Blood and Tissue Reactions.—Harvey and Hamilton describe experiments in which they demonstrated that there is an invariable sequence of events in response to the introduction of foreign material into the body, a polymorphonuclear leukocytic infiltration followed by a monocytic and, *if time* allows, a *lymphocytic*. The *lymphocyte*, *monocyte*, macrophage and giant cell probably represent stages of development of one and the same type of cell. No matter what the nature of the stimuli (trauma injection of solution of sodium chloride, india ink, staphylococci, tubercle bacilli or benzene; ingestion of food or fluid; posture; application of heat; muscular exercise) they all produce the same sequence of events so far as cell response in the tissues or in the blood is concerned. There is not yet sufficiently conclusive evidence, except by extension of the local influence and of deficiency of cells, for chemical action at a distance as a factor in the production of blood and tissue cell response. One may speak of a positive chemotaxis in the sense of collection of cells to a focus but not in the sense of a specific call for a special type of cell. It is doubtful whether negative chemotaxis exists at all. The special tissue manifestations and blood pictures attached to particular diseases and assisting in their diagnosis are reducible to manifestations of simple acuteness or chronicity, local tissue destruction, and duration of stimulus, thus making the blood picture a matter merely of the time at which the examination is made. There is nothing specific about the cellular reaction in disease or in physiologic states. There is only variation in the degree and duration of a phase.

Glasgow Medical Journal

36: *281-339 (June) 1932*

Some Ocular Manifestations of High Blood Pressure: Plea for Routine Use of Ophthalmoscope in Clinical Medicine. A. M. Ramsay.—p. 281.
Primary Intrathoracic Growths: Clinical and Pathologic Study of Cases Occurring in Victoria Infirmary, Glasgow. Marjorie Gillespie.—p. 296.

Irish Journal of Medical Science, Dublin

75: *97-144 (March) 1932*

*Clinical Study of Achlorhydria. H. Moore.—p. 97.
Contribution to Study of Renal Function. T. W. T. Dillon and E. J. Conway.—p. 119.
*Tuberculosis of Middle Ear in Adult. T. G. Wilson.—p. 126.
Balanoposthitis Due to "Vincent's Angina." R. H. Micks.—p. 129.

No. **77:** *193-240 (May) 1932*

Tuberculosis in Relation to National Health. A. Trimble.—p. 193.
Rôle of the Midwife in Public Health Scheme. J. A. Musgrave.—p. 203.
The Work of the Midwife. Bethel Solomons.—p. 213.
Maternity and Child Welfare Clinic: Its Origin, Scope and Trend. K. Reddin.—p. 217.
A Nurse's Work in School Medical Inspection Scheme. M. M. O'Leary.—p. 224.
Chronic Deafness and Its Treatment. T. G. Wilson.—p. 227.
Common Heart Troubles. L. Abrahamson.—p. 234.

Clinical Study of Achlorhydria.—Moore states that achlorhydria, besides being found in a certain proportion of apparently healthy persons, in many cases of gastro-intestinal disease and in odd cases presenting miscellaneous disorders, is a *frequent observation in diabetes mellitus* and a still more frequent occurrence in hyperthyroidism and in the nonmegalocytic, "hypochromic" form of anemia; in the latter disease it seems to have causal relationship, either direct or indirect, but in the light of recent work on pernicious anemia even this surmised causal relationship may not be the complete explanation. At any rate, this nonmegalocytic form of anemia is of frequent occurrence, and its adequate treatment with iron in the ferrous form by mouth gives satisfactory results.

Tuberculosis of Middle Ear in Adult.—Wilson calls attention to the fact that tuberculous otitis media in adults is usually secondary to tuberculosis elsewhere in the body. The diagnosis rests on the painless onset of a thin mucopurulent discharge, together with marked deafness rather than on laboratory methods. The only nontuberculous cases in which this is likely to occur are those in which there is an old-standing perforation of the tympanic membrane. Multiple perforations of the *membrana tympani occur in about one third of the cases.* The chances of recovery from the local condition are fair. Secondary infection by pyogenic organisms completely changes the clinical picture and renders the outlook more serious. When this takes place there is a marked tendency to luxuriant proliferation of granulation tissue. The presence of a tuberculous otitis media indicates a severe infection and justifies a grave prognosis of the general condition. Treatment should be confined to simple cleansing of the meatus and the use of mild antiseptics. It is suggested that zinc ionization might give good results in a series of cases. Treatment of the lung infection is of major importance.

Journal of Laryngology and Otology, Edinburgh

47: *369-448 (June) 1932*

*Anatomic Basis of Chronic Frontal Sinusitis. J. van der H. Leonhard.—p. 369.
Cholesteatoma in Aural Suppuration: Its Relation to Prognosis. T. B. Jobson.—p. 380.
Cholesterol Metabolism. J. A. Gardner.—p. 395.

Anatomic Basis of Chronic Frontal Sinusitis.—Van der H. Leonhard calls attention to the fact that the frontal sinuses of which the roentgenogram shows a true transverse diameter of less than 3 cm. are rarely subject to a chronic inflammation. The lateral stasigenic (stasis producing) factors are apparently most prevalent in the left sinus, the medial factors undoubtedly predominating in the right sinus. The greater tendency of the right frontal sinus to chronic disease estimated directly is confirmed by the author's data. These data rest not only on the comparison of all the stasigenic factors of all the sinuses of one side together with those of the other but also on the fact that the total number of deep pockets predominates on the right. The author believes that if rhinologists who have seen a great deal of chronic frontal sinusitis would decide to publish the exact number of their well authenticated cases (right and left side separately) in the form of a simple personal statistic, and if those who have at their disposal a great number of anatomic preparations of this sinus would examine for the presence of stasigenic factors (the two sides separately), this interesting question could definitely be settled. It is particularly interesting because the comparison in definite cases of roentgenographic data with the intrasinusal statistics is often able to show one the correct and the shortest way to the appropriate treatment.

Journal of Mental Science, London

78: 263-446 (April) 1932

Somatic Changes in the Psychoses: Comprehensive Investigation of Bodily Functions of Thirty Psychotic Patients by Means of Clinical, Pathologic, Biochemical, Pharmacologic and Radiologic Methods. Muriel L. M. Northcote.—p. 263.
Parallel Study of Psychogalvanic Reflex and Hyperglycemia Index in Psychotics. Madeline R. Lockwood.—p. 288.
Pick's Disease (Circumscribed Senile Atrophy) and Alzheimer's Disease. F. T. Thorpe.—p. 302.
Studies in Experimental Psychiatry: II. Some Contact of p-Factor with Psychiatry. W. Stephenson.—p. 315.
The Alienist Department of India. W. S. J. Shaw.—p. 331.
Investigation into the Physical Characteristics of Skin in Some Types of Psychosis. P. B. Mumford and L. C. F. Chevens.—p. 342.
*Histologic Study of Series of Cases of Acute Dementia Praecox. C. B. Bamford and H. Bean.—p. 353.
*Observations on Abnormalities of Pupils and Iris in Tabes Dorsalis, General Paralysis and Taboparesis, with Consideration of Their Bearing on Pathogenesis of Argyll Robertson Pupil. W. M. McGrath. —p. 362.

Acute Dementia Praecox.—According to Bamford and Bean, there are no characteristic histopathologic changes in the brain in dementia praecox. The most constant feature of the disease is a condition of fibrosis affecting the solid viscera, demonstrable both macroscopically and microscopically. The kidney first and spleen secondly bear the brunt of the fibrosis, and these two organs invariably show the effects of this process microscopically. The other organs are affected to a lesser extent, and they tend to exhibit individual variation. In the authors' experience the usual order of involvement is: liver, suprarenal, testis or ovary, thyroid, pancreas, pituitary and pineal gland.

Abnormalities of Pupils and Iris in Neurosyphilis.—McGrath states that the pupillary phenomenon originally described by Argyll Robertson is a complex one and consists invariably of the following components when it is fully developed: loss of the direct and consensual response to light, retention (not invariably of normal degree) of the response to convergence, trophic changes in the texture and color of the iris, and abnormalities in the dimensions (miosis) and in the form of the pupil. No one of these components is more constant than another, and no one of them is separable from the rest. This, the true Argyll Robertson pupil, is invariably associated with neurosyphilis and is never found apart from that condition. The Argyll Robertson phenomenon commonly develops segmentally, becoming uniform only when fully developed. It is to this segmental development of iris changes that segmental loss of light reaction and pupil irregularity are due. This mode of development indicates that the underlying nervous lesion must be in the peripheral neuron. Observations recorded by the author are not compatible with a central lesion in the midbrain. The so-called Argyll Robertson pupil of nonsyphilitic lesions of the nervous system is clinically distinguishable from the true Argyll Robertson pupil. It is accompanied by pupil dilatation and is characterized by the absence of miosis, pupil irregularity or trophic changes in the iris. Theories as to its pathogenesis have no bearing on the problems presented by the true Argyll Robertson pupil.

Journal of Neurology and Psychopathology, London

12: 289-372 (April) 1932

*Familial Bilateral Acoustic Tumors. L. Minski.—p. 289.
Three Fatal Cases of Bulbar Type of Poliomyelitis. W. G. S. Brown. —p. 309.
*Pseudosclerosis of Strümpell-Westphal in Five Members of a Family. F. J. Curran.—p. 320.

Familial Bilateral Acoustic Tumors.—Minski reports three cases of familial bilateral acoustic tumors that occurred in three different members of the same generation. The form taken by the disease is interesting, in that one patient suffered from double acoustic tumors only, one from spinal tumors only, and one from double acoustic tumors and generalized neurofibromatosis. In spite of examination of most of the living members of other generations, no signs of neurofibromatosis could be found in them, and a careful search into the histories of others that were deceased brought to light no data suggesting its occurrence. In all three patients a blow preceded the first signs of the disease, the trauma in each case being local; in case 1 it was on the head, in case 2 on the elbow, where two lumps appeared, and in case 3 on the shoulder. It is probable, however, that the trauma merely first drew attention to the disease. Bone changes were present in two cases. One patient had an osteoma of the rib removed some years ago, and pes cavus, and another had a right lumbar scoliosis.

Pseudosclerosis of Strümpell-Westphal.—Curran briefly summarizes the literature regarding Strümpell Westphal's pseudosclerosis and discusses the differential diagnosis between this condition and possible allied neurologic conditions (especially multiple sclerosis, Wilson's disease and juvenile parkinsonism). The Kayser-Fleischer corneal ring is mentioned as a pathognomonic sign of pseudosclerosis or Wilson's disease. Case reports of five children in one family having this corneal ring with unusual neurologic signs and mental symptoms are recorded. The parents of these children were first cousins.

Journal of Physiology, London

75: 1-111 (May 30) 1932

Staircase Phenomenon in Ventricular Muscle. A. S. Dale.—p. 1.
State of Flexor Reflex in Paraplegic Dog and Monkey, Respectively. J. F. Fulton and C. S. Sherrington.—p. 17.
Rôle of Pituitary Gland in Pregnancy and Parturition: I. Hypophysectomy. H. Allan and P. Wiles.—p. 23.
Influence of Insulin on Liver Glycogen of Common Gray Australian "Opossum" (Trichosurus). B. Corkill.—p. 29.
Influence of Temperature in Frog: (1) On the Circulation, and (2) on Circulatory Effects of Adrenalin and Sodium Nitrite. W. C. Cullis and E. M. Scarborough.—p. 33.
Note on Effect of Age on Response of Immature Mice to Urine of Pregnancy. Margaret Hill.—p. 44.
Further Observations on Effects of Some Component of Crude Lecithin on Depancreatized Animals. C. H. Best and J. M. Hershey.—p. 49.
Effect of Lecithin on Fat Deposition of Liver of Normal Rat. C. H. Best, J. M. Hershey and M. Elinor Huntsman.—p. 56.
Influence of Muscular Work on Protein Metabolism. H. E. C. Wilson. —p. 67.
Changes in Blood Composition of Unanesthetized Rabbits Following Ingestion of Water and Saline. F. H. Smirk.—p. 81.

Lancet, London

1: 1185-1238 (June 4) 1932

*Dysphagia. W. Howarth.—p. 1185.
Technic of Experimental Pneumonoconiosis. E. H. Kettle and R. Hilton. —p. 1190.
Lymphatic Leukemia, with Infiltration of Periosteum Simulating Acute Rheumatism. F. J. Poynton and R. Lightwood.—p. 1192.
Calcification of Abdominal Aorta, with Reference to Atheroma and Radiologic Investigation of Arteries. G. E. Vilvandré.—p. 1194.

Dysphagia.—Howarth calls attention to the fact that when a patient complains of discomfort or difficulty in swallowing over any considerable period it is of the greatest importance that a careful examination of the tongue, pharynx and larynx be made at once. In some cases it will be found that a chronic inflammatory process is the cause of the trouble; for instance, a well marked chronic pharyngitis, particularly the hypertrophic type with swollen lateral bands that is produced by postnasal discharge, often gives rise to considerable dysphagia. This is not only on account of the inflamed mucosa being sensitive to the stimulus of the food but also on account of some underlying myositis which may interfere to some extent with proper coordination of the muscular action. Various forms of ulceration at the back of the tongue, on the faucial pillars, or in the pharynx may be responsible, and in this connection are mentioned Vincent's angina, syphilis and malignant disease Apart from the inflammatory disorders, the conditions in the larynx that may give rise to difficulty in swallowing are usually of a serious nature Examination with a laryngoscopic mirror may reveal abnormal conditions in the epilaryngeal region or in the sinus pyriformis A swollen and infiltrated epiglottis and arytenoids may be due to tuberculous disease, a deep crater-like ulcer due to a breaking down gumma or to malignant disease Dysphagia in such cases may be severe and may often be accompanied by pain, which radiates to the ears The difficulty in swallowing is often an early symptom, as any process that causes swelling of the structures at the entrance to the larynx will prevent this from being drawn upward into the base of the tongue, and the food or fluid will touch the swollen epiglottis or arytenoid and dysphagia thus occurs owing to undue spasmodic contraction of the pharyngeal musculature Often fluids present more difficulty than semisolids or solids Under conditions of the esophagus that cause dysphagia the author discusses spasm, congenital stricture cicatricial stenosis, diverticula, ulceration, foreign bodies, malignant disease and various extra-esophageal disorders in which the esophagus is compressed

Medical Journal of Australia, Sydney

1: 599 634 (April 30) 1932

Eye Changes in General Medicine B Moore —p 599
Salpingostomy C Coghlan —p 608
Action of Roentgen Rays and Rays from Radium Needle on Cholesterol in Vitro W B S Bishop —p 610
Vascular Disease, with Especial Reference to Diabetes Mellitus E Downie —p 612
Roentgen Ray Demonstration of Fracture of Nasal Bones H Flecker —p 616
Hematuria and Its Investigation M S S Earlam —p 617

1 635 668 (May 7) 1932

A Queensland Medical School and Some Other Matters of Interest to Medical Profession E S Meyers —p 635
Roentgenographic Observations of Human Skeleton Prior to Birth H Flecker —p 640
Localization and Removal of Foreign Bodies C Gale —p 643
Observations on Disturbances of Glucose Tolerance During Course of Infections Margaret Long and E Downie —p 647
Allergy, with Especial Reference to Asthma and Hay Fever R S Steel —p 648

1: 669 710 (May 14) 1932

The Anne MacKenzie Oration A Student Under Lister' R H Russell —p 669
Spinal Anesthesia A F Brown —p 674
Some Remarks on Early Phenomena and Natural Course of a Few Common Diseases I F Hurley —p 679
*Endotracheal Inhalation of Ether G Kaye —p 684

Endotracheal Inhalation of Ether.—According to Kaye, endotracheal inhalation anesthesia necessitates the use of a catheter so wide as practically to occlude the glottis but not so large as to do injury This catheter provides an ample airway but prevents any inhalation of air between the catheter and the walls of the larynx This is necessary for two reasons (1) to prevent dilution of the anesthetic with air and (2) to obviate the risk of aspiration of foreign matter from the pharynx into the trachea, since the return current of air which is a feature of the insufflational technic is absent here When much blood may lie free in the pharynx, the latter may be packed closely around the catheter with gauze, all apprehension regarding aspiration into the trachea being thus removed The catheter, once inserted, is practically an extension of the trachea and obviates all possibility of expiratory obstruction due to the presence of blood or mucus in the pharynx or to falling back of the tongue In the original technic, the catheter was connected to a piece of rubber tubing of suitable length and caliber, at the end of which was attached a source of supply of ether vapor, for example, the bowl of a Clover s inhaler or a perforated tin containing ether In this way air was inhaled and exhaled by the patient across the surface of ether in the container Considerable care was necessary lest fluid ether reach the air passages A more elegant technic is supplied by an adaptation of Magill's method for the endotracheal inhalation of gaseous anesthetics Air supplied from a motor blower or other source is passed across the surface of ether in a container suitably equipped with a tap for the control of the ether concentration and with a guard bottle The ether-laden air then enters a small rubber bag serving as a reservoir It next passes, by means of a metal elbow piece, to the proximal end of the catheter Interposed between the bag and the elbow piece is an exhaling valve so contrived that the patient inhales air from the bag and exhales through the valve Rebreathing occurs only in the catheter and not in the bag, unless the exhalation tension of the valve is adjusted for this purpose

South African Medical Assn. Journal, Cape Town

6: 287 320 (May 14) 1932

Importance of Early Investigation of Cases of Hematuria I Maisels —p 287
Undulant Fever P D Strachan —p 291
Ear, Nose and Throat Aspects of Hysteria R Stevenson —p 294
Accessory Sinus Suppuration R L Scott —p 295
Ear, Nose and Throat Cases in General Practice C E Jones Philipson —p 297

Chinese Medical Journal, Shanghai

46: 347 448 (April) 1932

Hepatolenticular Degeneration (Pseudosclerosis, Progressive Lenticular Degeneration and Torsion Spasm) Review of Literature and Report of Two Cases Yu Lin Cheng —p 347
Acute Pancreatitis Complicating Empyema of Gallbladder J B G Muir —p 370
Radium Treatment in So-Called Infectious Sarcoma of Dogs A I H Wong and H J K'ang —p 377
Complete Obstruction of Coronary Artery in Syphilitic Aortitis Report of Case H Kokita —p 383
Study of Quantitative Basis of Specific Precipitin Reaction T J Kurotchkin and C O Kratze —p 387
Distribution of Medical School Graduates in China W G Lennox —p 404
Work of Malaria Commission of the League of Nations M Ciuca —p 412

Paris Médical

1: 553 563 (June 25) 1932

*Leukolytic Medication C Aubertin —p 553
Virus of Herpes Simplex in Treatment of Dementia Paralytica by Method of Wagner von Jauregg O Naegeli —p 559
Treatment of Nervous Diseases by Hemolytic Serum Paulian and C Fortunesco —p 562
Roentgen Therapy in Chronic Anterior Poliomyelitis H Bordier and A Goujon —p 564
Primary Pulmonary Cancer of Difficult Diagnosis with Multiple Metastases H Gounelle and I Chaudre —p 566

Leukolytic Medication.—Aubertin lists the leukolytic agents and discusses the mechanism of leukolytic medication, its therapeutic effect in certain diseases of the hematopoietic organs and the dangers incurred by its use In patients with lymphatic leukemia, roentgen irradiation of the cervical lymph nodes of one side, the axillary lymph nodes and the spleen should be given twice a week with 500 r A rapid decrease in the leukocyte count results, accompanied by a slow decrease in the relative lymphocytic count and diminution of the volume of the spleen and lymph nodes, ending in a greatly improved general condition The spleen and lymph nodes may be normal and the leukocyte count near normal, but a relative lymphocytosis persists and a slight eosinophilia shows that the disease is only arrested, not cured The inevitable relapse a few months later responds to renewed treatment, but more slowly than the first attack When the blood is nearly normal, treatments should be given every two or three months The patient may be kept in apparent health for from two to four years, rarely longer, but finally dies of a relapse resistant to roentgen rays, or from cachexia In myelogenous leukemia, roentgen irradiation of the spleen and the flat bones or the extremities of the long bones produces in the main the same results, but improvement takes place more slowly. After about twenty treatments, the spleen reaches a subnormal state and the leukocyte count is normal or subnormal with a relative polynucleosis and usually less than 1 per cent of myelocytes This satisfactory state continues from about six months to one year, especially if irradiation is repeated at intervals, but relapse is inevitable and, as in lymphoid leukemia, response to treatment is slower There may be three or four relapses, but the efficacy of the irradiation decreases and the periods of remission become shorter until the patient succumbs in cachexia or from an attack of myeloblastic leukemia Roentgen therapy has no practical value in acute leukemia In aleukemic lymphomatosis the spleen and lymph nodes are reduced in size without appreciable modification of the blood While radium, thorium and benzene theoretically have the same action and the advantage of permitting treatment in the patient's home, the author prefers roentgen rays. He calls attention to the following dangers of leukolytic medication: (1) excessive leukolysis, (2) excessive erythrolysis, (3) hemorrhagic aleukemia (the two latter occur chiefly from use of benzene), (4) toxic accidents by too rapid destruction of leukopoietic tissue and (5) production of embryonic cells and transformation into acute leukemia.

Presse Médicale, Paris

40: 1013-1028 (June 29) 1932

*Sodium Borate in Exophthalmic Goiter. M. Loeper, P. Soulié and E. Bioy.—p. 1013.
Hypersensibility to Bee Venom. M. Perrin and A. Cuénot.—p. 1014.
Prevention of Meningitis in Fractures of Skull. H. Vulliet.—p. 1017.
Perianorectal Suppurations. R. Kaufmann.—p. 1018.
Roentgen Therapy of Pyogenic Granuloma. A. Marin.—p. 1022.

Sodium Borate in Exophthalmic Goiter.—Loeper and his associates consider sodium borate of value in the treatment of exophthalmic goiter. It can relieve the subjective symptoms (agitation, nervousness and insomnia) and the objective symptoms (tachycardia, tremor, thyroid hypertrophy and, after a long period, the exophthalmos). The indisputable signs of its therapeutic value are its effect on the protein equilibrium of the blood and on the basal metabolism. The authors have previously shown with what frequency the protein equilibrium of the blood is disturbed by an excess of serum albumin and a decrease in serum globulin and in albumins precipitated by acetic acid. Sodium borate therapy results in a decrease of the serum albumin, a return of the globulin to normal and an increase in the albumins precipitated by acetic acid. The basal metabolism may be decreased from 10 to 30 per cent. In addition to four cases previously reported, the authors report four new ones in which the emotivity, insomnia, tachycardia and tremor were relieved, the thyroid hypertrophy being decreased in two cases and the exophthalmos in one case. The basal metabolism was increased from 10 to 30 per cent and the disturbed protein equilibrium of the blood modified. The action of sodium borate on the nervous system can be confirmed, but it has not yet been proved that it has a selective action on the thyroid or that it modifies its pathologic reactions. The formula used in treatment is 10 Gm. of sodium borate, 10 Gm. of sodium citrate and 200 Gm. of water. The dosage is a tablespoonful two or three times a day.

Cuore e Circolazione, Rome

16: 285-336 (June) 1932

Meaning of Enlarged Q Wave in Lead III of Electrocardiogram. C. Pezzi and C. Papp.—p. 285.
Electrocardiogram in Pericardial Effusion. G. Picchini.—p. 300.
*Average Arterial Pressure. R. Lusena.—p. 311.

Average Arterial Pressure.—Lusena reviews the literature of arterial pressure and gives his results obtained in measuring the average pressure of 121 patients with and without lesions of the cardiovascular system. The author has observed that: 1. Medium pressure is modified by strain, as under the action of epinephrine or after venesection. 2. Medium pressure does not indicate the anatomic or functional state of the heart and has no prognostic value in decompensation. 3. Medium pressure is not modified in pneumonia. 4. No tensional formula of maximum and medium pressure exists that characterizes a cardiovascular illness. He believes that the behavior of medium pressure does not explain the long tolerability of aortic insufficiency. He is of the opinion that one cannot substitute medium pressure for minimum pressure.

Policlinico, Rome

39: 265-316 (June 1) 1932. Medical Section

Renal Elimination of a Mixture of Colored Substances and Its Value in Study of Renal Function. P. Steffanutti.—p. 265.
Neutrophilic Leukocytes with Toxic Granulations in Typhoid. M. Gavazzeni and L. Beltrametti.—p. 275.
*Severe Hypochromic Cryptogenic Anemia. G. Antonelli.—p. 283.

Severe Hypochromic Cryptogenic Anemia.—Antonelli describes a case of advanced chronic anemia with febrile manifestations, characterized by constant hypochromia of the red corpuscles, by notable hematic regeneration scarce or absent in the circulation but present in the hematopoietic centers, and by clinical indications of hemolysis which does not present relative myeloid hypoplasia of the mature granulocytes. The histologic alterations consist of siderosis of the liver, spleen, bone marrow and kidneys, an isolated hyperplasia, and hypertrophy of the reticulo-endothelial tissue, mainly in the splenic pulp and the bone marrow. Further alterations are diphtheroid lesions of the intestine, a secondary proliferation of the collagenic tissue and partial osteosclerosis, which, together with the myelosclerosis, have a certain pathogenic importance in the determination of severe anemia. The same hyperplasia of the reticulo-endothelial elements may be considered as the histologic cause of the hematopoietic disturbance culminating in the hematologic syndrome. No definite conclusion was reached regarding the diphtheroid lesions of the intestine; they are believed to be secondary, having slight importance in the determination of anemia.

39: 917-956 (June 13) 1932. Practical Section

Behavior of Blood Platelets Following Operations: Temporary Increase in Their Numbers. G. Picardi.—p. 917.
Springtime Relapse of Primary Malarial Infection Contracted During Summer and Fall. A. Nazari.—p. 921.
*Colitis Due to Balantidium Coli. A. Moretti.—p. 922.
Exploratory Puncture Needle for Perforating Skull. G. Egidi.—p. 925.
Campaign Against Flies. A. Franchetti.—p. 940.
Case of Embolism of Subclavian Artery. R. Satullo.—p. 944.

Colitis Due to Balantidium Coli.—Moretti states that the clinical symptomatology of his patient revealed an eosinophilia of 5 per cent still present after recovery, with bloody stools and a normal temperature. Balantidium coli was found in the feces and on microscopic examination showed the typical appearance with a large kidney-shaped nucleus and inclusions of bacteria, fat, starch granules, detritus cells and erythrocytes. The author reviews the anatomopathology and the symptomatology and treatment of the disease. He gave his patient 0.04 Gm. of emetine hydrochloride a day and obtained good results. In conclusion he states that, even though the disease is quite rare, it would be found more often if a microscopic study of the feces were made in cases of lesions of the large intestine.

Semana Médica, Buenos Aires

39: 1641-1704 (June 2) 1932. Partial Index

Fetal Macrosomia: Pathogenic Factors. D. Iraeta and J. R. Obliglio.—p. 1655.
*Therapeutic Action of Fluorides in Exophthalmic Goiter and Hyperthyroidism: Technic of Fluoride Treatment. L. Goldemberg.—p. 1659.
Biologic Treatment of Carbuncle of Upper Lip by "Haptinogens." J. Nesi and L. J. Acquavella.—p. 1665.
Kinesitherapy in Hemiplegia. M. C. Bordato.—p. 1668.
Cancer of Stump of Cervix Uteri After Subtotal Hysterectomy: Case. A. H. Molfino and R. A. Boero.—p. 1680.
Grave Burns and Their Treatment by Blood Serum or Whole Blood from Patients Convalescing from Burns. C. F. Amado.—p. 1696.

Action of Fluorides in Exophthalmic Goiter and Hyperthyroidism.—Goldemberg states that fluorides introduced in the organism (by either the oral or the intravenous route) have an action on the thyroid hormone by means of which this substance is neutralized or precipitated in the body fluids and tissues and its excessive production is arrested. The gradual diminution of the specific substance causes an amelioration of the clinical symptoms until the recovery of the patient is obtained. The oral administration, however, cannot be resorted to in all cases because some patients show gastro-intestinal disturbances. The author obtained good results with sodium fluoride given intravenously. The therapeutic action of the drug in exophthalmic goiter and hyperthyroidism is evident in a slow and gradual but continuous form. The nervous symptoms are the first to disappear after the first four or five injections. Sleep gradually returns. Tachycardia diminishes (except if the heart is already in a condition of hypersystole or asystole; but even in those cases digitalis therapy, which before the administration of sodium fluoride neither diminished the excessive rapidity of the action of the heart nor restored the tonus to the myocardium, recovers its cardiotonic action when its effects are combined with those of fluoride therapy). The basal metabolism slowly returns to normal or near normal. The size of the goiter diminishes gradually until it almost disappears. Exophthalmos greatly diminishes, although it does not disappear entirely and the tremor rapidly and completely disappears. The author begins the treatment with 2 or 3 cc. of a 2.5 per cent solution of sodium fluoride in distilled water. The dose for the injection is gradually increased from 0.5 to 1 cc. in each injection. This dose is maintained until the amelioration of the clinical symptoms begins to show. Then the dose is gradually diminished to 4 cc. per injection, which dose is maintained all through the series (from fifteen to twenty) of injections. At the beginning of the treatment the injections are given either every day or every other day. As soon as the thyrotoxic symptoms improve, the injections are given at intervals of three or four days. After the patient has received the first series of injections he is not given any more for fifteen or twenty days, when another series of injections at the same interval is given. The series are thus given alternated with periods of rest for some months. Clinical cure, as a rule, appears between the fifth and tenth months of treatment. Some patients who support well the fluoride therapy by the oral route can receive the treatment in a combined form, that is, both by injections of the solution mentioned and by the oral administration of progressive doses of from 10 to 50 drops of a 2 per cent solution of either ammonium or sodium fluoride, in milk, four times a day for fifteen or twenty days. The author claims good results in cases in which antithyroid serum, iodide therapy and roentgen irradiation of the thyroid had previously failed. It seems advisable to continue the treatment for a minimal period of from five to six months and in some cases from ten to twelve months; also to give the patient two or three series of injections every year for the two or three years following the first treatment. The treatment may also contribute in the preparation of the patients for operation in cases of hyperthyroidism with a large and sclerous goiter. Fluoride therapy, because of its neutralizing action on the thyroid hormone, seems to be able also to prevent postoperative thyrotoxicosis. This opinion seems to be supported by the experience of the author in seven cases of severe exophthalmic goiter previously reported in the *Presse médicale* (38:1751 [Dec. 20] 1930; abstr. The Journal, April 4, 1931, p. 1183), and in a case of acute thyrotoxicosis in a patient with exophthalmic goiter.

Archiv für klinische Chirurgie, Berlin

171: 511-796 (June 8) 1932

Changes in Joint Capsule and Their Relations to Effusions of Knee Joint. H. Baumecker.—p. 511.
Postoperative Pulmonary Embolisms. M. Mátyás.—p. 570.
Function of Biliary Passages. K. Blond.—p. 597.
*Influence of Blood on Local Pyogenic Infection. H. Nakatani.—p. 648.
Influence of Various Anesthetics on Function of Liver: Experiments with Bilirubin and Congo Red. S. Takane.—p. 672.
Significance of Ileocecal and of Appendicular Valves. F. I. Walcker.—p. 706.
Relation Between Mammary Gland and Incretory System. H Offergeld.—p. 722.
*Transplantation of Parathyroids in Parathyroprival Tetany. H. Hanke.—p. 738.
Malformations of Urinary Organs, with Especial Consideration of Crossed Renal Dystopia. H. Boeminghaus.—p. 754.
Treatment of Injuries of Tendons Within Synovial Sheaths. F. Hesse.—p. 772.
Permanent Cure Following Surgical Treatment of Lymphosarcoma. G. Garry.—p. 790.

Influence of Blood on Local Pyogenic Infection.—Nakatani considers it of interest to determine whether an effusion of blood counteracts infection or whether it provides a favorable medium for bacteria. He made experiments on about 240 rabbits, by injecting bacterial cultures such as staphylococci, streptococci or colon bacilli together with blood from the animal into the cavity of the knee, the subarachnoidal space or the pleural cavity. The results of these tests are summed up as follows: 1. Whole blood provides an unfavorable medium for the development of bacteria and seems to prevent the development of inflammation. 2. Defibrinated blood promotes inflammation. 3. Serum in its action is about midway between the two types of blood mentioned and has slight connection with either promotion or inhibition of inflammation. 4. The blood, the coagulation of which has been checked by the addition of heparin or citrate, as a rule promotes inflammation, but if the citrate content is high, inflammation is prevented. 5. The arresting influence that whole blood exerts on inflammation is due to the bactericidal power and to coagulation, particularly to the mechanical action of the latter.

Transplantation of Parathyroids in Parathyroprival Tetany.—Hanke states that after-examinations of two patients who, seven years previously, had undergone heteroplastic transplantations of parathyroids for the treatment of parathyroprival tetany showed that one, who had had a tetany of medium severity, was almost completely cured, and in the other one, in whom the tetany had been extremely severe, there still existed tetany that was sometimes latent and sometimes manifest, but still there was a considerable improvement. In both cases there was a favorable influence of transplantation and in the second case it saved the life of the patient. Because of the gradual disintegration of the transplants, the action is only temporary. The author discusses the requirements for a successful transplantation therapy and points out that although other treatments (protective diet, parathyroid extract and viosterol) have been introduced in recent years, the transplantation method is still indicated for certain cases.

Beiträge zur Klinik der Tuberkulose, Berlin

80: 1-138 (May 25) 1932

*Significance of Hematogenic Pulmonary Tuberculosis for Development of Bronchiectatic Changes During Childhood: Differential Diagnosis Between Secondary Tuberculosis and Bronchiectasis. H. U. Köttgen.—p. 1.
Genesis of Infiltrative Pulmonary Diseases: Connection Between Infection During Childhood and Phthisis in Adults. H. Adler.—p. 22.
Thoracoplasty and Its After-Treatment. W. Curschmann.—p. 37.
*Iodine Therapy of Pulmonary Tuberculosis. A. Sylla.—p. 51.
*Transitory, Inflammatory Pulmonary Infiltration of Nontuberculous Origin. C. Boytinck.—p. 67.
Morphology and Pathogenesis of Primary Infection in Intestinal Tuberculsis. M. Iizuka.—p. 79.
Pathlogic Histology of Miliary Tuberculosis on Basis of Examination of Argentophilic Fibers. M. B. Ariel.—p. 100.
Observations During Gerson's Diet. W. Curschmann.—p. 120.
Congenital Cystic Lung. M. Bönniger.—p. 132.
Thoracoscopy Phantom. P. Boltze.—p. 136.

Tuberculosis and Bronchiectasis.—Köttgen estimates the injurious effects exerted by the tuberculous process on the bronchial wall and further mentions secretory stasis and coughing, the latter two factors probably causing dilatation. Then, after having explained the concurrence and the genetic connection of the two conditions, he shows that in other cases it is just as important to differentiate the two disorders, which often resemble each other greatly. Auscultatory examination reveals in bronchiectasis usually many bubbling, sonorous or nonsonorous râles. Percussion is less important in the diagnosis of bronchiectasis. The roentgenogram of the patient with bronchiectasis usually shows only slight changes, which do not correspond to the severe clinical aspects. This discrepancy between the clinical and the roentgenologic aspects is characteristic for the uncomplicated cases of bronchiectasis. The typical sputum of bronchiectasis, which on standing divides into three distinct layers and which has an offensive odor, was formerly considered as of especial significance for the diagnosis, but it is now known that this is a late symptom. Moreover, it is not pathognomonic, for it is observed also in simple suppurating bronchitis. Of great significance are hemorrhages that become manifest either by slight admixture of blood to the sputum or by hemoptysis. This symptom speaks especially in children for bronchiectasis. The temperature is only of slight value for the differential diagnosis, because both diseases are characterized by fever; however, in bronchiectasis the fluctuations are usually more pronounced. The tuberculin test is likewise only of slight value. In the conclusion the author points out that with the exception of contrast filling there is no absolutely reliable method for the differentiation of bronchiectasis and tuberculosis, but in the majority of cases the consideration of all the other symptoms makes a correct diagnosis nevertheless possible, and even if contrast filling of the bronchial tree becomes necessary, this is not difficult if done by one with sufficient experience.

Iodine Therapy of Pulmonary Tuberculosis.—Following a review of the literature, Sylla reports his own observations with iodine therapy of pulmonary tuberculosis. He is convinced that if suitable iodine preparations are used, this treatment can be employed in all forms of pulmonary tuberculosis, except in cases with hemorrhages and in those with new infiltrates. The iodine therapy effects an improvement in the general condition and facilitates expectoration and respiration. In cases of minor severity it effects increase in weight, reduction of temperature, decrease in erythrocyte sedimentation speed and increase in hemoglobin, in erythrocytes and in lymphocytes. The bacilli decrease, provided large doses of iodine are given; if small doses are given, this result is rare.

In purely fibrous and in productive cirrhotic forms without bacillary dissemination, small doses are sufficient. After ten injections it is advisable to interrupt the treatment for about two weeks and then repeat the series of injections several times. Most suitable are intravenous injections; but if the venous system is impaired, intramuscular injections may be given, which, however, are less readily tolerated by emaciated patients. In cavernous cirrhotic processes without marked dissemination of bacilli, the small doses are likewise sufficient. But if the bacillus content of the sputum is to be considerably decreased, larger doses are required. If caution is necessary, the same dose should be given several times in succession before it is increased. The decrease of the tubercle bacilli in the sputum cannot be considered a direct antibacterial iodine action, but it is probable that the iodine effects detoxication of the organism by binding the tuberculous toxins. By eliminating the paralyzing action of these toxins on certain cells, such as the leukocytes, lymphocytes, histocytes and epithelioid cells, the defense apparatus of the organism is mobilized, and thus a larger number of tubercle bacilli are destroyed.

Transitory, Inflammatory Pulmonary Infiltration of Nontuberculous Origin.—Boytinck discusses various forms of pulmonary infiltrations in which the source of infection and the blood picture do not indicate tuberculosis. He emphasizes that such infiltrations should be diagnosed as tuberculous only when every other etiology can be excluded or tuberculosis has been demonstrated. Nontuberculous infiltrations are especially frequent following nasal and pharyngeal disorders, but they are also observed after other infections, and they may even occur during pulmonary tuberculosis. The transitory character of such foci speak against tuberculosis, but even infiltrations of longer duration are frequently nontuberculous.

Klinische Wochenschrift, Berlin

11: 1009-1048 (June 11) 1932

Estimation of Therapeutic Results with Aid of Calculation of Probabilities P. Martini—p 1009
*Rare, Formerly Disregarded, Nutritive Allergens. E. Urbach and R Willheim—p 1012
Capacity of Horse Serum to Agglutinate Human Erythrocytes F Koch—p 1015.
*Thyroxine Therapy of Eclampsia and of Preeclamptic Disturbances H Küstner—p 1016.
What Cells of Human Hypophysis Form Sex Hormone of Anterior Hypophysis Outside of Pregnancy? E J. Kraus—p 1020
Immunotherapy of Warts and Condylomas H. Biberstein—p 1021
Chlorine Content of Tissues in Rats with Obstruction in Upper Parts of Intestine E Schnohr—p 1026
New Colorimetric Method for Demonstration of Sweat Secretion W. Rieder and A. Neumann—p 1027.
Lipoid Distribution in Niemann Pick Disease H Sobotka, E Z. Epstein and L Lichtenstein—p 1028
Diagnosis of Hay Fever by Cutaneous Tests. A. Kessler—p 1032

Nutritive Allergens.—On the basis of the clinical histories of two adult patients with lichen urticatus and with chronic urticaria with pigmentation, respectively, Urbach and Willheim call attention to the significance of sodium chloride, of organic acids and of sugars as nutritive allergens The detection of these connections is not only of theoretical interest; in the cases under discussion it showed the way to successful treatment, by which the patients were freed from allergic disorders to which they had been subject for years.

Thyroxine Therapy of Eclampsia and of Preeclamptic Disturbances.—Kustner bases his thyroxine therapy of eclampsia on the theory that an uncompensated hyperfunction of the posterior lobe of the hypophysis is an etiologic factor of eclampsia and also on the assumption of an antagonism between the posterior hypophysis and the thyroid. In his therapeutic experiences with thyroxine he found that of the three main symptoms of eclampsia, namely, increased blood pressure, retention of fluid and protein elimination in the urine, the fluid retention is most favorably influenced, in that the fluids are forced out of the tissues and into the blood stream and then are eliminated. For this reason thyroxine is most effective in the forms of eclampsia without high blood pressure but with considerable edema and a disturbed renal function. Still more effective than in eclampsia is the use of thyroxine in preeclampsia and in such conditions as dropsy and nephropathy. Here again the efficacy is most noticeable when the retention of fluid is the main symptom, but the thyroxine is ineffective when the blood pressure increase is most noticeable and the fluid retention is only slight. The author does not wish to overemphasize thyroxine therapy but only wants to point out that in many instances of eclampsia the administration of the secretion of the thyroid can be highly effective. He adds that large amounts of thyroxine do not exert an injurious effect on mother or infant.

Münchener medizinische Wochenschrift, Munich

79: 1021-1060 (June 24) 1932

Coronary Sclerosis E Romberg—p 1021
Stretching of Muscles and Nerves in Frogs H von Baeyer and W. Stichs—p 1024
*Gonorrhea Therapy in Men by Means of Brief Injections of Silver Preparations S Lomholt—p 1024
Combat of Carcinoma of Cervix and of Vagina H Hinselmann—p 1026
Dietary Treatment of Patients with Chronic Ulcer of Stomach J Prüfer—p. 1028
Sciatica and Related Conditions S Erben—p 1029
Simple Counting Chamber for Thrombocytes and Reticulocytes W Bernsdorf—p 1034
Protection of Perineum During Confinement O Rudel—p 1034

Injection of Silver Preparations in Gonorrhea.—Lomholt thinks that the introduction of silver compounds into the urethra is still one of the most practical methods for the treatment of gonorrhea in men He assumes that its efficacy is due to a superficial caustic action by which the outer layers of cells are destroyed and the gonococci killed or their growth checked. But while exerting this action the silver is rapidly changed into silver chloride, which has only a small number of free silver ions and hardly any therapeutic effect In investigating as to what is the optimal length of time for which the silver preparation should be retained in the urethra, the author found that retention for from five to fifteen minutes, as is usually prescribed, is not necessary, since the chemical character and with it the therapeutic action of the silver compound change within less than a minute The rapidity of change varies in the different compounds In the case of silver nitrate, for instance, it was found that retention for from twenty to thirty seconds is sufficient, whereas other preparations can be retained for from forty to sixty seconds It was also observed that it is advisable to make several such brief injections immediately following each other, at least three each time, for otherwise one is not positive that the irrigation fluid has come in contact with the entire mucous membrane The treatment with three brief (twenty seconds each) successive injections should be given from three to four times daily The author found that this method is not only more agreeable to the patient but exerts action stronger than that of a single injection, lasting from five to fifteen minutes

Strahlentherapie, Berlin

44: 201-400 (June 15) 1932

Roentgen Therapy of Ovarian Carcinoma H Wintz—p 201
Changes in Indications for Roentgenologic Induction of Temporary Menolipsis H. Guthmann—p 227
Radium Treatment of Myoma and of Metropathia Haemorrhagica R T von Jaschke—p 235
Treatment of Chorio Epithelioma H Eymer—p 241
Ray Treatment of Carcinoma of Corpus Uteri F Voltz—p 250
Technic of Application of Radium T C Neeff—p 257
*New Roentgen Tube for Body Cavities in Treatment of Uterine Tumors W Schaefer and E Witte—p 283
Therapy of Carcinoma with Extremely Hard Roentgen Rays E von Schubert—p 293
Therapeutic Results in Uterine Cancer W Haupt—p 311
Carcinoma of Vulva and of Urethra H Kirchhoff and A Eirund——p 335
Primary Morbidity and Mortality Following Radium Treatment of Carcinoma of Cervix. R Kessler and H Schmidt—p 349
*Bone Diseases in Women After Roentgen Treatment for Uterine Carcinoma E Philipp—p 363
Diagnostic Significance of Ray Action in Cancer and in Inflammatory Disorders R. Hubert—p 379
Calcium and Potassium Metabolism Under Influence of Roentgen Rays in Rabbits K Adler and O Wiederhold—p 383
Roentgen Treatment of Vulval and Anal Pruritus W. Kolde—p 393

New Roentgen Tube for Treatment of Uterine Tumors.—The attempt to treat tumors by introducing a roentgen tube into a body cavity, according to Schaefer and Witte, was tried more than twenty-five years ago. However, all the tubes that were constructed for this purpose proved unpractical until the authors, after their experiments with the cathode ray tube, tried to build a tube for introduction into body cavities. From a cathode ray tube that is of little therapeutic value they produced a roentgen tube by replacing the thin metal window by a thicker one that is not permeable for cathode rays, and thus it becomes an anticathode But since from such a tube the rays escape in all directions, it is not suited for use within a cavity. However, by shifting the ray source to the end of the tube, a radiation is produced that is similar to radium and has the advantage that by filtration the rays can be limited to the desired direction. After describing the structure of the apparatus, the authors advise as to how to introduce it into the vagina for irradiation of uterine tumors, and they state that the patients whom they treated with this method tolerated the irradiations well; neither roentgen intoxications nor burnings resulted Because of limited experience they do not feel justified in considering this the best method of irradiation, but they think that in certain cases it may improve the results

Bone Diseases in Women After Roentgen Treatment of Uterine Carcinoma.—Philipp calls attention to bone injuries, particularly to those of the neck of the femur, which have been observed in women following irradiation for uterine carcinoma. These bone injuries have been considered as of carcinomatous origin, but more careful observation revealed this assumption to be erroneous, and since the hip region of these women was subjected to intense irradiation the author suggests that the bone injuries may be the result of irradiation. He reviews several reports from the literature and describes several cases of his own observation The author examined his patients carefully for the presence of other disorders that might cause bone injuries, but he did not detect any. As an indication that the bone is injured directly by the rays and not by their general action, he cites the fact that in patients in whom the rays were not applied to the sides, but only to the abdomen and back, bone injuries as those described were not observed

Wiener klinische Wochenschrift, Vienna

45: 769 800 (June 17) 1932

Puberty W Falta—p 769
Combined Heredopathias and Their Probable Hereditary Transmission V. Hammerschlag—p 772
*Special Form of Urinary Retention and Its Treatment R Lichtenstern and O Marburg—p 776
Present Status of Ray Therapy of Carcinoma of Cervix Uteri S Simon—p 780
Relations of Macular Anetodermia to Diffuse Atrophying Acrodermatitis G Nobl—p 783
Surgery of Nonparasitic Liver Cysts J G Knoflach—p 786
Short Wave Therapy P Liebesny—p 787
Diagnosis of Otogenic Meningitis G Alexander—p 788

Special Form of Urinary Retention and Its Treatment.—Lichtenstern and Marburg note that there are cases of incomplete evacuation of the bladder in which hypertrophic changes in the sphincter are thought responsible for the retention and which are therefore treated by a wedge-shaped excision from the sphincter. However, the authors found that this operation does not give the desired results, and that it is probable that this mechanical factor is not alone responsible for the deficient evacuation, but that the nervous apparatus also is involved They discuss the innervation of the bladder and describe the results of the neurologic examinations of their patients. The nervous symptoms were a hyperesthesia of the third, fourth and fifth sacral segments and increased patellar and achilles tendon reflexes. To overcome these functional disturbances, the patients were given injections of pilocarpine hydrochloride and epinephrine, at first every day and later every second day. After the tenth injection a considerable facilitation of the urinary evacuation was noted and the residual urine gradually decreased. After fifty injections the bladder could usually be completely evacuated This result, in connection with the neurologic observations and the inefficacy of the sphincterotomy, makes it probable that the inflammation caused a disturbance in the innervation of the bladder and that this in turn caused a disturbance in the sphincter and in the muscle facilitating the evacuation of urine. The so-called hypertrophy of the sphincter the authors consider as secondary, caused either by inflammation or by overburdening by the retained urine This makes it understandable why an excision from the sphincter does not produce the desired results.

Zeitschrift für klinische Medizin, Berlin

120: 517-814 (June 3) 1932

Quantitative Investigations on Resynthesis of Lactic Acid in Human Beings S Dietrich and M Zeyen—p 517.
*Method of Physical Determination of Beat Volume K Hartl and F Bonsmann—p 549
Influence of Respiratory Movements on Gas Exchange of Lungs and on Circulation R. Herbst and P. Schellenberg—p 587.
Idem R Herbst—p 595
Experimental and Clinical Observations on Hypertension Caused by Exclusion of Vasomotor Nerves H. Mies—p. 613
*Misuse of Tobacco and Hyperthyroidism F. Schlumm—p 648
Blood Pressure During and After Sea Baths and Sun Baths J. Berg—p 654
*Capillaroscopic Studies in Vascular Disturbances. F. Zeitz Kuckenburg—p 671
Blood Sugar Content and Gastric Secretion H. Kalk and P. F. Meyer.—p 692
Angina Pectoris Case D Scherf—p 715
Serodiagnosis of Tuberculosis W Dewenter—p 725.
Spontaneous Pneumothorax, with Especial Consideration of Idiopathic Pneumothorax H Pfost—p 731
*Influence of Lecithin on Insulin Action E Skouge and A Schrumpf—p 751
Working Capacity Increased by Administration of Small Doses of Metal Preparation F Schreiber and B Villinger—p 768
Erythrocytotic Action of Acidosis L Detre—p 778
Pseudospecific Vitamin Injuries O L E de Raadt—p 781.
Passage of Fuchsin S into Cerebrospinal Fluid: Permeability of Meninges S von Nador-Nikitits—p 785
Physiologic Action of Carbon Dioxide Baths L B Buchstab and I M Sribner—p 797
Nature of Postoperative Reaction in Exophthalmic Goiter Following Thyroidectomy J Holst and C Closs—p 807.

Method of Determination of Beat Volume.—Hartl and Bonsmann say that until recently only gas analytic methods were known for the determination of the beat and minute volumes They review the physical methods that have been recommended With the method devised by Broemser and Ranke, they conclude that it is not only possible to confirm the results obtained with the gas analytic methods but also to estimate the slightest circulatory changes Broemser and Ranke's formula includes the following factors: duration of systole, duration of diastole, duration of pulse and the velocity of the pulse wave These factors can be determined from the pulse curves that are taken on the subclavian and the femoral veins But in addition to these factors the formula takes into consideration the density, that is, the specific gravity, of the blood, the blood pressure and a number factor, the latter being determined by comparison of the results obtained by a method devised by Broemser and of a gas analytic method that gives absolute values The authors discuss the results of their tests and present tables One table shows the circulatory changes in several persons in the course of a day. Following the intake of large quantities of fluid the minute volume is increased in normal persons, but in patients with circulatory disorders it may be decreased after meals. During upright posture there is a decrease in the circulatory factors and in the action of the heart The authors illustrate with tables the action of digitalis, caffeine, epinephrine, nonsurgical venesection, oxygen respiration, injection of a hypertonic solution of sugar or of an ergot preparation, and the influence of ether anesthesia.

Misuse of Tobacco and Hyperthyroidism.—According to Schlumm, the symptoms of chronic nicotine poisoning that have received the most attention are tremor of the hands, increased reflex irritability and inclination to tachycardia Some authorities think that these are of psychic nervous origin, whereas others noted a slight enlargement of the thyroid and consequently considered the possibility of an influence of nicotine on this organ In persons who consumed large amounts of tobacco the author nearly always noted damp skin, a tendency to sweating and to diarrhea, and occasionally also glossy eyes, decrease in weight and loss of hair. All these signs are symptomatic of increased action of the thyroid The blood picture of excessive smokers likewise resembles that of patients with exophthalmic goiter. These observations induced the author also to study the basal metabolism and he found that, of seventy-one persons who consumed excessive amounts of tobacco, fifty-five (more than 77 per cent) had increased metabolism. In those of the smokers who could be induced to abstain from tobacco, the basal metabolism decreased and the nervous symptoms likewise improved Further, the author studied the specific dynamic action of protein and also the iodine content of the blood. He found the latter to be considerably above the normal. He reaches the conclusion that the excessive use of tobacco, particularly of cigarets, has undoubtedly a considerable influence on the thyroid, and he thinks it probable that other incretory organs are likewise influenced, although so far studies have been made almost exclusively on the suprarenals, and some authors have suggested a connection between misuse of tobacco and certain disorders in the sexual apparatus.

Capillary Studies in Vascular Disturbances.—Zeitz-Kuckenburg describes capillaroscopic studies in vasoneuroses (migraine, urticaria, Quincke's edema, Raynaud's disease, sclerodermia) in peripheral arteriosclerosis and in thrombo-angiitis obliterans. The vasoneuroses show irregularity in the structure of the capillaries and changes in the direction of the current which correspond to the changes in the sympathetic functions and to the temporary character of the clinical manifestations. In peripheral arteriosclerosis, with or without gangrene, there are regularly elongated capillaries with thin arterial branches, and the hair-pin form predominates. In thrombo-angiitis obliterans the capillaries are characterized by the persistence of their form, width, number and arrangement. The development of gangrene produces no changes, and therapeutic measures influence only the current in the capillaries but not the form. This seems to indicate that in the vessels that are superordinated over the capillaries irreversible anatomic changes have taken place previous to the development of the gangrene, and these changes give the capillaries a definite, no longer reversible, form. On the basis of the typical capillaroscopic aspects, it is possible to differentiate vasoneurosis, peripheral arteriosclerosis and thrombo-angiitis obliterans, which in their early forms are difficult to diagnose. During the gangrenous stages, capillaroscopy aids in the diagnosis and gives etiologic pointers. Thus, capillaroscopy is a valuable method in the estimation of peripheral vascular disturbances.

Influence of Lecithin on Action of Insulin.—In experiments on rabbits as well as on human subjects, Skouge and Schrumpf were able to demonstrate that by simultaneous injection of insulin and lecithin the action of insulin is prolonged in comparison to pure insulin action. The subcutaneous or intravenous injection of lecithin alone causes no changes whatever in the blood sugar curve. However, the administration of lecithin alone, as well as the simultaneous administration of lecithin and insulin, causes a rapid but slight reduction in the blood pressure, which is probably due to an admixture of cephalin to the lecithin. When the insulin-lecithin mixture is administered intravenously, the resulting blood sugar curve does not differ from that which results from administration of insulin only. The effect of the prolonged action of insulin following subcutaneous administration of insulin and lecithin is due to a retardation in the resorption of the insulin. The same effect can be produced by subcutaneous injection of insulin in olive oil. The latter method of applying insulin is of therapeutic significance in cases in which it is desirable to avoid repeated injections in the course of the day. In this event the doses of insulin must of course be larger.

Zentralblatt für Chirurgie, Leipzig

59: 1505-1552 (June 18) 1932

*Self-Sterilization of Impregnated Catgut in Wound. von Linden.—p. 1506.
End-Results of Bone Transplantation in Pseudarthrosis of Ulna. A. Contargyris.—p. 1513.
Inversion of Colon Below Splenic Flexure. K. Sasaki and K. Kim.—p. 1514.
Nephropyelotomy. Behrend.—p. 1516.
*Prophylaxis of Posttraumatic Meningitis. E. Urech.—p. 1516.
Neurinomatosis of Appendix. E. Steden.—p. 1520.
Experiences with Phrenic Exeresis. A. Schakir.—p. 1523.
Ossification in Elbow Joint After Injuries. A. Blencke.—p. 1524.

Self-Sterilization of Impregnated Catgut in Wound.—It is maintained by von Linden that sterility tests of impregnated catgut in bouillon correspond to the biologic conditions, and that catgut, the relative sterility of which has been proved by bouillon culture, never causes an infection. Then tests are described which she made to demonstrate the biologic aftersterilization in the living organism, and the efficacy of the impregnated catgut in preventing wound and general infections. The tests show that catgut impregnated with copper can be employed for suturing purposes without special precaution, since the biologic sterilization that takes place in the organism excludes the danger of infection. Copper catgut does not have to be protected either from septic material or from the air, because when it comes in contact with the body fluids it develops bactericidal powers. However, the author does not wish to advocate carelessness, for she thinks that double precautionary measures are always justified when health and life are at stake. By calling attention to the biologic sterilization of copper catgut, and to a lesser degree also of iodine catgut, she wishes to give to the surgeon a feeling of security.

Prophylaxis of Posttraumatic Meningitis.—According to Urech, meningitis is a frequent complication of injuries of the skull and in about 10 per cent of traumas of the skull it is the cause of death. If those who die from contusion of the brain during the first forty-eight or seventy-two hours following the trauma are excluded from the statistics, the morbidity and mortality from meningitis are still higher. Observations on posttraumatic meningitis convinced the author that it is usually fatal, that in a large percentage of cases it results from an infection of the ears and nose, that it may develop soon after the trauma, but also may be a late complication, and that as a rule it is caused by the pathogenic organisms that are usually found in the nose and ears, more particularly by streptococci and pneumococci. The occurrence of staphylococci is rarer and that of meningococci is exceptional. From these observations the author concludes that since posttraumatic meningitis cannot be cured, it should be prevented, and since the main pathogenic organisms are streptococci and pneumococci, a seroprophylaxis with the respective serums should be tried. Since the fall of 1927 he has given every patient with a cranial injury in addition to the usual antitetanus injection also one of antistreptococcus and antipneumococcus serum. Of the 168 persons with skull fractures who were treated in this manner, only one died as a result of a cerebral abscess containing staphylococci, and this abscess probably resulted from an infection of the trepanation wound. During the preceding four year period, before the seroprophylaxis was instituted, the fatalities following cranial fractures were in 21 per cent of the cases due to meningitis. The author also emphasizes that the seroprophylaxis never caused noticeable complications, and he recommends the treatment for further trial.

Sovetskaya Vrachebnaya Gazeta, Leningrad

April 30, 1932 (number 8), pp. 449-512. Partial Index

Experimental Study of Methods for Preparation of Bacterial Vaccines. O. O. Gartokh, M. I. Kanevskoy and L. V. Vasilyevoy.—p. 459.
Toxoid in Active Immunization Against Diphtheria. M. P. Izabolinskiy, B. P. Carpachevskaya and B. F. Tovyanskoya.—p. 465.
*Influence of Sodium Formate and Other Sodium Salts on Gastric Secretion. S. M. Riss.—p. 467.
Clinical Aspect and Prognosis in Syphilitic Aortitis: Influence on Blood Pressure. A. M. Vidrin.—p. 470.
*Hydrocephalus as Complication in Cerebrospinal Meningitis of Children. N. G. Rubinshtein.—p. 473.
Recidivation of Malaria After Its Use as Therapeutic Measure. B. N. Serafimov.—p. 477.
*Intravenous Injections of Sodium Iodide in Treatment of Chronic Rheumatic Arthritis. I. A. Snegurskiy.—p. 479.
*Bang's Bacillus Infection of Man. B. P. Kushelevskiy.—p. 481.
Organized Medicine to Improve Sanitary Conditions of Labor and Standards of Living of Russian Worker and Collective Farmer. I. M. Kushnir.—p. 488.
Tremor of Voice as Physical Symptom in Study of Chest. B. I. Trusevich.—p. 499.

Influence of Sodium Formate on Gastric Secretion.—Riss states that deprivation of sodium chloride lowers gastric secretion and gastric acidity. Therefore a diet free from this salt is important in treating hyperacidity and ulcer with increased acidity. In his efforts to substitute a salt that would give the taste necessary to the food and yet not stimulate secretion, the author used sodium formate and also sodium acetate and sodium citrate. Experiments on dogs proved that these salts also increased gastric secretion and are therefore contraindicated in treatment with sodium chloride-free diets in gastric disturbances with hypersecretion and hyperacidity.

Hydrocephalus as Complication in Cerebrospinal Meningitis.—Rubinshtein states that hydrocephalus is one of the most frequent complications in cerebrospinal *meningitis* of children and that its occurrence does not depend on the severity of the primary infections. Among 322 patients with cerebrospinal meningitis examined during three and one-half years of study, 56, or 17.3 per cent, had hydrocephalus; and of the latter group, 21.4 per cent recovered, 50 per cent died, and 28.5 per cent were discharged with a tendency to chronicity. Specific symptoms for hydrocephalus are infrequent. The atypical forms of hydrocephalus are divided into (1) the abortive form with incomplete symptoms, (2) the latent form with late symptoms, (3) the form with symptoms simulating organic disturbances of the brain, and (4) the paroxysmal form. More than half the patients with hydrocephalus are nurslings; the incidence of hydrocephalus decreases as the age increases. The author discusses seven typical case histories and concludes that his study does not explain the reason for the appearance of hydrocephalus as a complication in cerebrospinal meningitis. He suggests early hospitalization of patients with cerebrospinal meningitis and systematic lumbar puncture together with specific serotherapy as prophylactic measures. Lumbar puncture seems to be the only method of treatment for hydrocephalus. The results are excellent in abortive forms, in latent forms with normal vision or accompanied by blindness, and also in subacute forms simulating organic disturbance of the brain and meninges. In hydrocephalus accompanied by encephalitis the benefits following lumbar puncture are doubtful; nor is it necessary to make a lumbar puncture in patients with protracted forms of the disease characterized by great volumes of edema fluid, large depressed fontanels and general hypotonia. Lumbar puncture in the latter condition may result in total collapse.

Intravenous Injections of Sodium Iodide in Treatment of Chronic Rheumatic Arthritis.—Snegurskiy states that according to the nomenclature worked out by the special commission on rheumatism that met recently at Moscow, rheumatic disturbances may be placed in one of two groups; namely, the acute group and the group including the chronic latent diseases with a variable etiology and pathogenesis and an uncertain nature. In the treatment of arthritis of the second group, the author used intravenous injections of sodium iodide. Freshly prepared 10 per cent solutions of sodium iodide were stored in dark glass bottles and the solutions were boiled before use. At the beginning, 10 cc. was injected into the vein with a 20 cc. syringe and, except when reactions were noted, the following injections consisted of 20 cc. of the same concentration of solution of sodium iodide. Injections were made at intervals of one, two and only exceptionally three days; the average number of injections was from ten to fifteen. In most patients the treatment caused no inconvenience outside of slight dizziness and nervousness; several patients experienced slight pain in the articulations several hours following treatment and only one patient had a strong reaction, which was characterized by headache, a rush of blood to the head, restlessness, perspiration, and abundant secretion of mucus. Among forty-seven patients treated, thirty-eight had beneficial and nine had negative results. Some of the patients of the last group probably had podagric forms of arthritis, which do not react to injections of sodium iodide; some of these were unusually excitable and the nervous state was aggravated by pain. The author adds that sodium iodide is efficacious in neglected cases of arthritis in which other treatment has failed. In some instances the injections can be accompanied by other measures of treatment, especially physical therapy.

Bang's Bacillus Infection of Man.—Kushelevskiy states that malta fever due to Brucella melitensis is a disease of small horned cattle of southern and subtropical climates, whereas Brucella abortus infects large horned cattle and swine of a more northerly climate. In animals, the infection has an affinity for the genitalia, leading to abortion in the female, affecting the testes in the male, and causing sterility in both. Brucella melitensis is an obligatory, while Brucella abortus is a facultative pathogen for man. Infection in man is a result of contact with animals and especially through the use of raw milk and various milk products. Men are more susceptible to the disease than women, and the incidence is greatest in the age group from 20 to 40. The incubation period in several laboratory infections was from two to three weeks (in professional infection this period is shorter). The clinical picture is characterized by a remittent or intermittent fever with enlargement of the spleen and the liver, malaise, slight headache, perspiration and febrile remissions. The symptoms are even less marked than those in typhoid. The presence of frequent and typical complications of the sacral region, various skin eczemas and erythemas, articular complications (arthralgia and serous and suppurative arthritis) are more marked in Bang's disease than in malta fever. Bang's disease may also be accompanied by orchitis and orchiepididymitis with great pain and periodic swelling of the testis. The influence of Bang's infection on abortion in women is not definite. One writer reports seven abortions among eight gravidas with Bang's infection. The infection lasts from three to five months, while subchronic forms last a year and longer. The undulating character of the fever is not as distinct as in malta fever. The disease should be distinguished from typhoid and also latent miliary tuberculosis, various septic processes, colibacillary sepsis, malaria and rheumatic infections. Prognosis is usually favorable. There is no specific therapy except those medicaments indicated in septic infections (intravenous injections of quinine, colloidal silver, and neoarsphenamine alone or combined with methenamine).

Norsk Magasin for Lægevidenskapen, Oslo

93: 609-712 (June) 1932

*Roentgenograms of Pyloric Hypertrophy and Prepyloric Spasms in Chronic Gastritis and Gastric Ulcer. F. Serck-Hanssen.—p. 609.
Demonstration of Bence-Jones Protein in Blood and Urine. O. Jervell.—p. 622.
*Spontaneous Rupture of Aorta. P. Treider.—p. 631.
Stasis: Method for Experimental Demonstration of Stasis by Help of Special Specimens. L. Rotnes and L. Kreyberg.—p. 641.
*Influence of Mersalyl on Glycosuria. C. Sinding-Larsen.—p. 649.
Inversion of Uterus and Adherent Placenta. T. Gedde-Dahl.—p. 660.
*Low Duodenal Stenosis. J. Frimann-Dahl.—p. 664.

Roentgenograms of Pyloric Hypertrophy and Prepyloric Spasms.—Serck-Hanssen presents roentgenograms which show large blank patches in the contrast shadow corresponding to the distal part of the pyloric canal. As in cancer, the defect may be constant on repeated roentgen examination at intervals of some weeks and peristalsis may cease in the part corresponding to the defect. Operation in three cases revealed chronic gastritis without ulcer and, in one case, chronic gastritis with ulcer in the lesser curvature. In two cases with resection for chronic gastritis, considerable hypertrophy of the pylorus was found; in the roentgenograms this was evidenced by the great distance between the otherwise well filled pyloric canal and the well filled duodenum.

Spontaneous Rupture of Aorta.—Treider reports the case of a man, aged 48, previously well, in whom there occurred, without external cause, rupture of a dissecting aneurysm of the aorta with massive hemorrhage into the left pleural cavity. Gradually the aneurysm filled with fibrin and clotted blood and the patient improved somewhat. A second rupture then took place, with hemorrhage of over 3 liters, and immediate death. Necropsy showed total necrosis in the media, especially marked at the places of rupture. There were no signs of syphilis or other inflammation, only atheromatous changes. The primary cause of the necrosis is thought to have been toxic substances with epinephrine-like action and point of attack in the vasa vasorum.

Influence of Mersalyl on Glycosuria.—Sinding-Larsen's investigations confirm the results first described by Blix and Wechsler, that mersalyl reduces the glycosuria in diabetes, with simultaneous increase in the blood sugar, but does not affect the blood sugar in persons without glycosuria. He thinks the effect depends on a raised kidney threshold and is difficult to explain without accepting the filtration theory.

Low Duodenal Stenosis.—Frimann-Dahl describes three cases of duodenal stenosis in which diagnosis was established by roentgen examination and verified on operation, in one case also on necropsy. In all cases the roentgenograms disclosed a dilatation of the duodenum of fully the size of the fist, with stenosis peristalsis and retention in the distended portion after four and a half hours. In the first case a diverticulum was found on operation and on necropsy, in the second, in addition to the dilated duodenum, there was a peculiar hypertrophy of the upper jejunum thought possibly to be of congenital origin, and in the third operation revealed a small adhesion which might have caused the stenosis.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 99, No. 11 Chicago, Illinois September 10, 1932

DEHYDRATION ATTENDANT ON SURGICAL OPERATIONS

FREDERICK A. COLLER, M.D.
AND
WALTER G. MADDOCK, M.D.
ANN ARBOR, MICH.

Water is the principal constituent of the body and is essential to the life and activity of every cell. In conditions of health a person automatically cares for his water needs through response to hunger and thirst; in conditions of disease the water supply is frequently governed by the physician. To care for these important water requirements intelligently requires a knowledge of the water losses and gains under all circumstances connected with disease. This study was undertaken to evaluate the water losses of the body during operation and in the recovery period of four hours after operation.

Water, comprising 70 per cent of the body weight, is ingested in greater amounts than all other substance combined. It is importantly concerned with the excretion of waste products and the dissipation of heat. In health the body holds a fixed amount of water and excretes whatever water is excessive. The study of this water balance necessitates the determination and calculation of the four sources of water to the organism and the three sources of excretion of water from it. The factors involved in water balance are as follows:

Intake	Output
1. Water of food.	1. Water of urine.
2. Water drunk.	2. Water of stool.
3. Water of oxidation.	3. Insensible water.
4. Preformed water.	

INTAKE

1. The amount of water in ordinary solid food is comparatively high. Meats run over 50 per cent water content, while vegetables and fruit are generally above 75 per cent water. The regular house diet in the University Hospital yields about 1,000 cc., and the soft diet has a water content of about 500 cc. of water a day. This source is therefore a real but varying percentage of the total water intake.

2. The average daily intake of fluids drunk varies greatly from day to day. Atwater and Benedict[1] found totals of from 833 to 1,407 cc. with the subject during light activity, averaging 1,267 cc. for forty-nine days. With increasing work the average amount ingested rose to 2,045 cc. For general considerations one may take about 2,000 cc. as the average adult intake.

3. Water is formed by the oxidation of the hydrogen of the foodstuffs in proportion to the amount of these materials consumed. The total amount is proportional to the total metabolism and is in the neighborhood of 300 Gm. for persons at light activity.

4. The preformed water is the body water that is attached to the tissues in the normal manner and is set free when tissue is oxidized. Similarly deposition of new tissue is attended by the retention of a corresponding amount of water. This amount is ordinarily so small as to have no important bearing on the total water balance, but in starvation may reach a value of 250 Gm. per day.

OUTPUT

1. In general, the amount of urine voided varies from 800 to 3,000 cc. daily. The weight of the urinary solids may be determined if accuracy is desired.

2. Water loss in feces of normal man is generally not more than 200 cc., usually between 60 and 150 cc. daily.

3. There is a continuous insensible loss of water from the skin and lungs that is always a large amount and may be the greatest increment of outgoing water even under normal conditions. The insensible loss of weight is made up largely but not entirely of water vapor. The body is continuously giving off water and carbon dioxide. The sum of these two obviously results in a progressive loss of weight which is slightly counterbalanced by the simultaneous absorption of oxygen. The relationship may be conveniently expressed as an equation, thus:

$$\text{I. L.} = H_2O\ \text{vapor} + CO_2 - O_2$$

or

$$\text{I. L.} - (CO_2\text{-}O_2) = H_2O\ \text{vapor.}$$

The actual determination of the insensible loss (I. L.) carbon dioxide (CO_2) and oxygen (O_2) by Wiley and Newburgh[2] showed that the water vapor varies from about 85 to 100 per cent of the total insensible loss. Generally it is well over 90 per cent. The conditions under which we worked did not permit such an analysis of the loss by our patients, but it is safe to assume that about 95 per cent of the weight thus lost in the operating room is water. Newburgh, Wiley and Lashmet[2b] studied the insensible loss in eight persons at normal activity over long periods of time and found this daily water loss to average from 1,000 to 1,550 cc. To this insensible loss a considerable amount may be added by the running away of sweat.

From the Department of Surgery, University of Michigan.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

[1] Atwater, W. O., and Benedict, F. G.: Metabolism of Matter and Energy in the Human Body, U. S. Agric. Dept., 1903, Bull. 136.

[2] (*a*) Wiley, F. H., and Newburgh, L. H.: The Relationship Between the Environment and the Basal Insensible Loss of Weight, J. Clin. Investigation **10**: 689 (Oct.) 1931. (*b*) Newburgh, L. H.; Wiley, F. H., and Lashmet, F. H.: A Method for the Determination of Heat Production Over Long Periods of Time, ibid. **10**: 703 (Oct.) 1931.

Increased metabolism or an uncomfortably high environmental temperature will increase the insensible loss.

In conditions of disease, when it is so important to maintain normal body water, it is often difficult to establish a sufficient inflow, because patients commonly refuse or are forbidden food and drink. Water may be conserved by the kidneys putting out as highly a concentrated urine as possible. This, however, may not be in sufficient quantity to get rid of the ordinary excretory substances, so that retention of nitrogenous and other waste material may occur. Instead of the normal insignificant loss of water from the gastrointestinal tract, diarrhea and vomiting may result in great losses. As shown by Orr and Haden[3] and Gamble and his colleagues,[4] the loss of water in this manner is accompanied by a serious loss of the sodium and of the chlorides it contains. Through this whole period, the insensible loss of water continues in spite of the curtailed intake. Fever, by increasing the metabolism, increases the insensible loss. The sweating of patients in the operating room and during the period of immediate recovery causes a further great outpouring of water. The study undertaken to evaluate the factors of fluid loss during this period was carried out as follows:

Table 1.—*Major Calculations for One Patient, Showing Method Used*

	Operation Period		
Patient no. 9—Partial gastrectomy for carcinoma Height, 66 inches. Body surface area, 1.57 sq. meters			
9:40 a.m.	Weight of patient		51,125 Gm.
9:45 a.m.	Anesthetic started, nitrous oxide and oxygen plus ether vapor		
11:48 a.m.	Anesthetic ended, moderate diaphoresis		
12:03 p.m.	Weight of patient and dressings.	50,305 Gm.	
	Corrections to be added		
	Weight of vomitus	37 Gm.	
	Weight of specimen	127 Gm.	
	Weight of blood lost	277 Gm	
		50,746 Gm.	
	Corrections: to be subtracted		
	Weight of dressings	181 Gm.	
			50,565 Gm
Weight of insensible loss plus moderate visible sweating In grams per square meter of body surface per hour, 149 8			560 Gm
	Postoperative Period		
12:03 p.m.	Weight of patient and dressings		50,305 Gm.
4:12 p.m.	Weight of patient and dressings.	51,761 Gm	
	Correction to be subtracted		
	Subpectoral infusion 5 per cent dextrose	1,746 Gm.	
	(No vomitus, no urine voided)		50,015 Gm
Weight of insensible loss plus slight visible sweating In grams per square meter of body surface per hour, 44 5			290 Gm.

The patient urinated just before leaving the ward. In the anesthetizing room, measurements of the skin temperature were taken. The top of the transporting stretcher coud be lifted off as a flat pan. The pan, patient and covers were then weighed on a platform scale accurate to 5 Gm. The patient was shifted to the operating table, and a new gown and covers were applied. The pan and the original covers were then weighed, in order to obtain the weight of the patient. During the course of the operation, measurements of the skin temperature were made. The temperature and humidity of the operating room were taken several times and averaged for the period. The weight of the vomitus, all tissue removed, the fluid taken up by the aspirator and the dressings used was carefully noted. The amount of blood lost during the operation was determined by the method of Gatch and Little.[5] At the end of the operation, all visible perspiration on the patient's body was wiped off and a dry gown and blanket were applied. The patient was shifted to the stretcher and the weight of the patient determined. The water exchange of the patient was followed in a similar manner for the immediate postoperative recovery period of four hours. A typical example of the major calculation for one patient is shown in table 1. The results of this study on eighteen patients during operation are shown in table 2.

For purposes of discussion, the cases may be divided into two groups, the first comprising cases 1 to 12, inclusive, which were studied under conditions of operating room routine with the usual coverings of a light blanket over the shoulders and thorax of the patient, another over the legs, a cotton shirt, leggings and surgical drapes. The second group comprised cases 13 and 18, inclusive, with a covering only of a shirt, leggings and drapes.

The water loss due to vomitus obviously will vary greatly with many factors of anesthesia and the patient's lesion. In the patients observed, the water lost from vomiting was small, and in no instance was it a factor of importance in the total outgo of water. It is obvious, however, that in patients with acute lesions of the abdomen such as intestinal obstruction the water loss from vomiting might be enormous. An accurate knowledge of the amount would be imperative to a proper maintenance of the water balance.

The blood loss as given in the figures is probably from 5 to 10 per cent less than the actual amount because of the inability to recover all of the hemoglobin from the sponges, drapes and instruments. These amounts are in accord with those published by Gatch and Little.[5] In most cases the amount of blood lost is not great and does not have a marked influence either on the fluid balance of the body or on the total blood volume. In general, the operator is surprised to find the blood loss as high as calculated, since he does not think of the gauze sponge as absorbing much blood. In one instance (case 8), a large, obese woman on whom a radical amputation of the breast for carcinoma was performed, there was a large loss of blood amounting to 1,272 Gm. This blood loss was not due to any one violent hemorrhage, but to many small venous hemorrhages that were absorbed rather than stopped by gauze packing. This patient had mild postoperative shock undoubtedly due to the loss of blood. It is probable that most surgeons underestimate the amount of blood lost, especially in operations such as the one mentioned, in which wide areas of the body are uncovered with many small points of hemorrhage, control of which is attempted by gauze packing. A rough estimate of the blood lost in any operation can undoubtedly be made and should be calculated as part of the total fluids lost by the body during this period, even though the blood loss alone is not regarded as serious in itself.

The water lost from the skin and lungs during the operative period is not usually appreciated and yet, as can be seen, may be a large amount. The total water lost during operation in this manner varied from 97 to 705 Gm., in general being a loss of fluids much in excess of the blood lost. In order to obviate the differences of time and the size of the patient, the insensible loss and the visible sweating were computed to the accepted standard of water in grams per square meter of body surface per hour. Wiley and Newburgh[2a] reported the normal for a subject under basal conditions to be from 17 to 21 Gm. of insensible water per square meter per hour. A comparison of this figure with those shown in the last column of table 2 demonstrates that the water loss by this method is much increased over the normal and may be as high as from eight to nine times as much as that for a patient at rest in bed.

---

[3] Orr, T. G., and Haden, R. L.: Water and Salt Imbalance in High Intestinal [illegible] Relation to Treatment, New York State J. Med. 3[illegible]

[4] Gam[illegible] New England J. Med. **201:** 909 (Nov. 7) 1929.

[5] Gatch, W. D., and Little, W. D.: The Amount of Blood Lost During Some of the More Common Operations, J. A. M. A. **83:** 1077 (Oct 4) 1924.

The factors that produce this great increase of insensible loss and visible sweating are probably many and hard to deal with individually, but the total loss is the significant point.

Table 2.—*Results from Study of Operation Period*

No.	Operation	Sex	Age	O. R. Temperature, F.	O. R. Humidity, per Cent	Anesthetic	Impression of Visible Sweating	Coverings	Vomitus, Gm.	Blood Loss, Gm.	Insensible Loss + Visible Sweating, Gm.	Total Fluid Loss, Gm.	Insensible Loss + Visible Sweating, Gm. per Sq. M. per Hr.
1	Partial gastro-enterostomy, carcinoma of stomach	M	53	84	38	Avertin + nitrous oxide and oxygen	Moderate	Blanket over legs and shoulders, gown, leggings, drapes	0	111	533	644	127.5
2	Excision thyroglossal cyst...	M	14	81	35	Avertin + nitrous oxide and oxygen	Moderate		0	174	313	487	82.3
3	Exploratory, kidney.........	F	37	78	33	Avertin + nitrous oxide and oxygen	Moderate		0	208	233	441	71.9
4	Repair inguinal hernia; appendectomy	M	20	80	28	Nitrous oxide and oxygen + ether vapor	Marked		60	54	666	780	152.6
5	Repair ventral hernia........	M	30	75	25	Spinal + nitrous oxide and oxygen	Marked		49	92	328	469	88.3
6	Excision sarcoma of thigh...	M	30	80	20	Nitrous oxide and oxygen + ether vapor	Moderate		0	161	245	406	121.6
7	Excision teratoid tumor of abdomen	F	52	80	21	Spinal..................	Slight		1	546	180	727	62.2
8	Radical breast amputation...	F	42	82	23	Nitrous oxide and oxygen	Moderate		2	1,272	705	1,979	193.8
9	Partial resection of stomach carcinoma	M	54	82	20	Nitrous oxide and oxygen + ether vapor	Moderate		37	274	560	871	149.8
10	Colostomy....................	F	38	80	38	Nitrous oxide and oxygen	None		0	13	97	110	66.7
11	Repair inguinal hernia........	M	25	74	25	Nitrous oxide and oxygen + ether vapor	Marked		0	13	259	272	167.6
12	Repair ventral hernia.........	F	48	78	29	Avertin + nitrous oxide and oxygen	Slight		0	147	115	262	65.0
13	Hemorrhoidectomy...........	M	29	77	14	Nitrous oxide and oxygen + ether vapor	Slight	Gown, leggings, drapes	49	8	92	149	51.8
14	Repair inguinal hernia........	M	54	78	25	Local.....................	None		0	51	192	243	40.2
15	Appendectomy.................	F	20	81	32	Nitrous oxide and oxygen + ether vapor	Moderate		8	14	166	188	116.1
16	Cholecystectomy.............	F	47	75	37	Avertin + ether vapor..	None		0	55	40	95	15.0
17	Appendectomy.................	F	15	71	20	Nitrous oxide and oxygen + ether vapor	Slight		30	13	137	180	84.2
18	Repair ventral hernia.........	F	34	76	20	Nitrous oxide and oxygen + ether vapor	Marked		27	306	347	680	113.9

Environmental temperatures above 27 C. (80.6 F.) were usually accompanied by a higher insensible and sweating loss. A comparison of case 1 with cases 2 and 3 shows a greater water loss with a higher temperature in the operating room, but other factors make comparison difficult. No constant effect of variation in humidity within the ranges observed was noted in these patients.

In the second group of patients, cases 13 to 18, a reduction in covering while under the anesthetic resulted in general in a definite reduction of the water losses. All of these facts are in accord with the findings of Wiley and Newburgh.[2a] The constant temperature of the body is maintained by a balance of the heat production with the heat loss through radiation, conduction and convection and by the vaporization of water. From a temperature of from 18 to 27 C., the body temperature is maintained largely by radiation, with about 24 per cent lost by evaporation. With an environmental temperature above 27 C., the heat lost by vaporization increases rapidly with utilization of the sweat mechanism. The water losses increase rapidly with each rise in temperature of 1 degree after this point. Since in the clothed subject the insensible loss is not affected by humidity, the patient wrapped in blankets is not thus affected by the humidity of the operating room. A patient under blankets or a person with clothing lives in his own environment, which is influenced somewhat by the temperature around it. If the coverings are excessive, the temperature of this environment will reach the temperature of the body, and efforts at heat loss will cause vasodilatation and marked sweating. A reduction in the covering permits a greater heat loss by radiation and diminishes the loss of water by vaporization.

It was noted that straining and moving under the anesthetic were associated with greater sweating than when the patient was quiet. This phenomenon frequently became evident immediately at the onset of straining. This point is well shown by cases 1, 2, 3 and 12, in which avertin was used, compared with cases 4, 6 and 9, in which ether was added to nitrous oxide and oxygen to secure relaxation. As has been frequently shown,[6] general inhalation anesthesia and spinal anesthesia produce peripheral vasodilatation, which was noted in all of our cases. This vasodilatation interferes with the normal mechanism of heat loss.

The largest insensible and visible sweat loss was in case 8, that of a large, obese woman in moderate shock. The association of marked sweating with surgical shock is often noted and, if present, is another factor increasing the loss of water. In cases 13 to 18 blankets were omitted from the covering while the patients were in the operating room with, in general, a diminution of the amount of water loss. The number of cases studied, however, is too small to permit of any generalization in regard to this point.

---

[6] Ipsen, J.: Les artères et l'anesthésie, Acta chir. Scandinav. **65:** 487, 1929. Morton, J. J., and Scott, W. J. Merle: The Measurement of Sympathetic Vasoconstrictor Activity in the Lower Extremities, J. Clin. Investigation **9:** 235 (Oct.) 1930. Scott, W. J. Merle, and Morton, J. J.: Obliteration of V[illegible] the Extremities Under Nitrous Oxide-Oxygen, [illegible] Alcohol Anesthesias, Proc. Soc. Exper. Biol. & Med. **27:** [illegible] (June) 1930.

The total fluid loss during the operation varies with the type of operation, the length of the operation and a number of variable factors of the temperature, anesthesia, covering and condition of the patient. It is small, between 100 and 200 Gm., for short operations such as herniorrhaphy and appendectomy. For larger operations of a moderate severity, the total fluid loss will average about 500 Gm., and in prolonged operations with a marked blood loss, it may reach 1 or even 2 liters.

The water lost during the recovery period of four hours after operation is shown in table 3. The water lost by vomitus was absent or very slight. The principal excretion was by the insensible loss plus visible sweating. The patients in cases 1 to 12 were placed in bed, with the routine covering of a spread, woolen blanket, sheet, woolen blanket, flannel blanket and gown. In one instance, case 5, the water loss was 828 Gm., probably due to marked sweating. In the other cases the water loss was from 217 to 450 Gm. In cases 13 to 18 the covering was reduced to a spread, woolen blanket, sheet and gown, with a noticeable diminution of the water lost through the skin and lungs. The water then lost varied from a minimum of 126 Gm. to 286 Gm. The contrast is sharpened by comparing this loss as expressed in grams per square meter per hour in the two groups. The patients with the lighter covering were much more comfortable and lost on an average of 200 Gm. of water during the four hour period less than those with heavier covering. We can see no logical reason for the excessively heavy covering often used for the patient during the recovery period.

TABLE 3.—*Result from Study of Four Hour Postoperative Period*

No	Operation	Room Temperature	Covers	Fluid In		Fluid Out		Impression of Visible Sweating	Insensible Loss + Visible Sweating, Gm.	Insensible Loss + Visible Sweating, Gm. per Sq. M. per Hr.
				Mouth, Gm	Infus. In-ven. Gm.	Vomitus, Gm.	Urine, Gm.			
1	Partial gastro enterostomy, carcinoma of stomach	74	Spread, woolen blanket, sheet, woolen blanket, flannel blanket, gown	0	1,241	0	0	Slight	339	47.3
2	Excision of thyroglossal cyst	73		0	0	90	0	Moderate	411	63.0
3	Exploratory, kidney	78		0	1,842	0	0	Moderate	450	72.0
4	Repair inguinal hernia; appendectomy	70		27	0	19	0	Slight	308	40.3
5	Repair ventral hernia	78		0	1,375	17	0	Marked	828	115.9
6	Excision sarcoma of thigh	67		0	0	60	0	Slight	369	57.6
7	Excision teratoid tumor of abdomen	73		201	1,459	0	0	Slight	402	58.9
8	Radical breast amputation	72		478	800	423	147	Slight	315	43.6
9	Partial resection stomach, carcinoma	75		0	1,746	0	0	Slight	290	44.5
10	Colostomy	78		0	1,042	0	0	None	217	37.5
11	Repair inguinal hernia	73		0	60	0	0	Slight	344	56.9
12	Repair ventral hernia	78		0	95	0	0	Slight	367	52.1
13	Hemorrhoidectomy	76	Spread, woolen blanket, sheet, gown	0	0	0	0	None	211	31.7
14	Repair inguinal hernia	75		121	0	0	0	None	286	35.5
15	Appendectomy	76		0	0	0	0	None	140	22.1
16	Cholecystectomy	76		0	1,112	0	0	None	152	21.4
17	Appendectomy	76		0	0	0	0	Slight	186	31.4
18	Repair ventral hernia	72		0	480	0	0	None	126	19.4

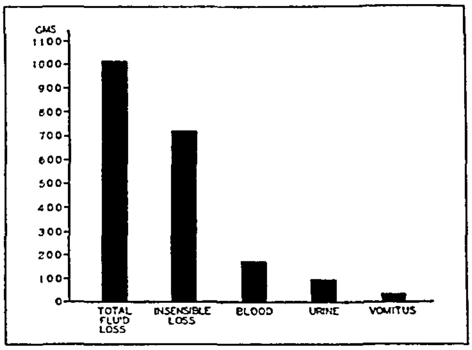
In order to compare the total fluid lost during the entire period of operation and the four hours after operation with the amount of urine excreted during this time, the patients voided or were catheterized after the last weighing. The results are shown in table 4, with the amount of urine excreted expressed in quantity and in terms of percentage of the total fluid loss. In the first twelve cases the urine output is less than 15 per cent of the total water lost during the entire time. In the last six patients the urine output rose to from 22 to 50 per cent of the total fluid loss. The total fluid lost during the period of operation and recovery by a patient on whom a laparotomy is performed will average close to a liter. Much greater losses occurred in certain cases in which there was marked sweating or blood loss. The component parts of the total loss are shown in the accompanying chart, emphasizing the relative importance of the insensible loss. The much greater amount of fluid lost by avenues other than the kidneys makes it clear that the commonly accepted clinical method of estimating the water balance by a comparison of the fluid intake with the urinary output is so inaccurate as to be worthless to the patient for whom an accurate maintenance of the water balance is necessary. We recognize the value of the specific gravity of the urine in giving an idea of the state of the water balance, granting that the concentrating power of the kidneys is normal or known. It is customary in many hospitals to chart graphically the fluid intake against the urinary output. The information thus obtained is adequate for the care of the ordinary patient operated on, but it does not represent the true water balance, as from 1,500 to 2,000 Gm. or more of insensible water may be lost by the patient in bed with fever. The body will still vaporize water in about the same amount to remove its heat even when the supply of water is so seriously diminished that anuria supervenes. There are certain sick patients undergoing operations in whom it is all important to maintain a proper supply of water. This can be done only by taking into account the water lost through the skin and lungs, vomiting and diarrhea, as well as that excreted through the kidneys.

TABLE 4.—*Comparison of Urine Output to Total Fluid Loss During Operative and Four Hour Postoperative Period*

Patient	Total Loss: Vomitus, Blood, Insensible, Visible Sweat, Gm.	Urine Output Total Period, Gm.	Percentage Urine of Total Fluid Loss
1	983	115	10.47
2	988	82	7.66
3	891	75	7.76
4	1,137	105	8.45
5	1,314	113	7.92
6	835	128	13.29
7	1,129	82	6.77
8	2,717	437	13.85
9	1,161	84	6.75
10	327	56	14.62
11	616	95	13.36
12	629	86	12.03
13	360	103	22.23
14	529	175	24.86
15	328	123	27.27
16	247	249	50.20
17	366	172	31.97
18	473	163	25.63

Insensible water contains negligible amounts of inorganic salts, and in the amounts of water lost in these patients, the salt loss is not important in contradistinction to the fluid lost by vomiting, diarrhea or enterostomy, in which the inorganic salt is so important. Therefore, normal dextrose solution can be used to replace this component of the body fluids. The fact that the water lost by evaporation [2a] increases rapidly with the rise in environmental temperatures beyond 27 C. should make one inquire seriously as to whether it is wise to subject the patient, during the postoperative period, to such high environmental temperatures as are usually caused by excessive bed clothing.

SUMMARY



Components of average total fluid loss during operative period and four hour postoperative period.

1. A study was made of eighteen patients on whom operations were performed to determine the body fluid lost during the operation and during the first four hours after operation.

2. During operation fluids were lost by vomitus, hemorrhage and insensibly through the skin and lungs. The amount lost by vomitus was not important; the amount lost by hemorrhage is often greater than the surgeon believes and varied with the type of operation from 8 to 1,272 Gm. The insensible loss plus visible sweating varied from 97 to 705 Gm., while this loss expressed in grams per square meter per hour is increased as high as nine times that of the basal state.

3. During the first four hours after operation the principal water loss was through the lungs and skin, varying from 126 to 828 Gm. A comparison was made between two groups with different bed clothing. The water loss of the patients with lighter bed clothing was over 50 per cent less than that of the group placed in the routine "ether bed."

4. The factors increasing the insensible loss and sweating were the temperature of the environment, principally that produced by blankets, struggling under anesthesia and the anesthetic.

5. Under routine conditions, the total loss during the entire period averaged about 1 liter. It may be much higher in certain instances. The urinary output during this period averaged less than 10 per cent of the total fluid lost. A comparison of the urinary output with the fluid intake does not give a correct estimate of the water balance. Other factors of water loss such as vomiting and diarrhea are important and have been stressed. We wish here to emphasize another important source of water loss amounting to from 1½ to 2 liters a day by the continuous insensible vaporization from the lungs and skin.

ABSTRACT OF DISCUSSION

Dr. Thomas G. Orr, Kansas City, Mo.: Food and water, of course, may be taken by the average patient up to within a few hours prior to an operation. Certainly it is not necessary in the average case to give any cathartics at any time prior to the operation. One conserves the patient's water in anticipation of the insensible loss that must inevitably occur in a high percentage of the patients who are given ether anesthesia. The chief concern when considering this insensible loss of water, is in those patients who are greatly depleted before reaching the operating room, and in preparing these patients one must provide for this loss as well as for the loss occasioned by the lack of water and the lack of food. In other words, it is necessary to consider carefully the water balance and the metabolic balance and the chemical balance in this class of patients before one proceeds to do an operation. The results of dehydration are far reaching if the dehydration is extreme. There is a disturbance of the heat regulating mechanism, an increase of the viscosity of the blood, a decrease in the oxygen carrying capacity of the blood, a decrease in the kidney function, and a disturbance of the acid-base balance. All these may be of extreme importance, of course, if the dehydration proceeds to an advanced degree. A compilation by Dr. Rowntree a number of years ago showed the intake of secretions into the upper intestinal tract in a period of twenty-four hours. The intake of saliva, bile, gastric juice, pancreatic juice and the succus entericus into the upper intestinal tract, in other words, an intestinal circulation, which takes place every twenty-four hours, amounts to an astonishing quantity compared to the quantity of blood in the body. The daily secretion into the upper gastro-intestinal tract amounts to between 7 and 8 liters. This represents two or three times the average quantity taken by mouth in twenty-four hours, three or four times the quantity of urine excreted, and about twice the total volume of the blood of the body. One can readily appreciate the importance of this internal gastro-intestinal, tract circulation. Any disturbance of this circulation must necessarily upset the metabolism of the tissues. It is this point that I wish to emphasize. I recommend, therefore, that the members of this group give this paper further study when it has been published, and I further suggest, if they have not already done so, that they review the classic articles by Rowntree and Marriott; Rowntree on "Water Balance," Marriott on "Anhydremia," which have been published in *Physiological Reviews*. Every operator doing major surgery should familiarize himself in a general way with the water and chemical balance of the body before undertaking a difficult type of operation.

Dr. Isidore Cohn, New Orleans: The authors properly emphasize the loss of water by sweating during operation in patients who are covered or overcovered. Interesting experiments prove that the loss is greater in the patients who are covered by too many blankets. They further emphasize that the amount of blood that is lost is oftentimes greater than is realized by the surgeon. It is proper to emphasize these things but I do not believe that the importance of having the patient at least properly covered should be forgotten or overlooked because the lowering of the general body temperature may have more effect on the patient than the insensible loss of water through the lungs and by sweating. It should also be remembered that the insensible loss can be guarded against by preoperatively increased fluid intake. Vomiting can be diminished by postoperative administration of fluids by other than the oral route.

Dr. G. A. Hendon, Louisville, Ky.: Loss of heat can be avoided to a large extent by a simple procedure. After the abdomen is opened, if there is, in the judgment of the surgeon, an extensive operation in prospect, he can clip off the distal end of the appendix, cut and tie the meso-appendix, and insert a catheter with two or three sutures through it and the appendix to hold it in place; he can then fill the colon with water at any desirable temperature, which gives an internal hot-water bag. This measure can be pursued in the patient's bedroom and the water changed as it becomes cooler, and more warm water supplied. This will compensate for the loss of both heat and water, and the appendix will slough off in about one week. In no case have I seen a fistula result.

Dr. J. Shelton Horsley, Richmond, Va.: The authors call attention to a phenomenon that is frequently overlooked.

amount of water loss. The number of cases studied, however, is too small to permit of any generalization in regard to this point.

The total fluid loss during the operation varies with the type of operation, the length of the operation and a number of variable factors of the temperature, anesthesia, covering and condition of the patient. It is small, between 100 and 200 Gm., for short operations such as herniorrhaphy and appendectomy. For larger operations of a moderate severity, the total fluid loss will average about 500 Gm., and in prolonged operations with a marked blood loss, it may reach 1 or even 2 liters.

The water lost during the recovery period of four hours after operation is shown in table 3. The water lost by vomitus was absent or very slight. The principal excretion was by the insensible loss plus visible sweating. The patients in cases 1 to 12 were placed in bed, with the routine covering of a spread, woolen blanket, sheet, woolen blanket, flannel blanket and gown. In one instance, case 5, the water loss was 828 Gm., probably due to marked sweating. In the other cases the water loss was from 217 to 450 Gm. In cases 13 to 18 the covering was reduced to a spread, woolen blanket, sheet and gown, with a noticeable diminution of the water lost through the skin and lungs. The water then lost varied from a minimum of 126 Gm. to 286 Gm. The contrast is sharpened by comparing this loss as expressed in grams per square meter per hour in the two groups. The patients with the lighter covering were much more comfortable and lost on an average of 200 Gm. of water during the four hour period less than those with heavier covering. We can see no logical reason for the excessively heavy covering often used for the patient during the recovery period.

In order to compare the total fluid lost during the entire period of operation and the four hours after operation with the amount of urine excreted during this time, the patients voided or were catheterized after the last weighing. The results are shown in table 4, with the amount of urine excreted expressed in quantity and in terms of percentage of the total fluid loss. In the first twelve cases the urine output is less than 15 per cent of the total water lost during the entire time. In the last six patients the urine output rose to from 22 to 50 per cent of the total fluid loss. The total fluid lost during the period of operation and recovery by a patient on whom a laparotomy is performed will average close to a liter. Much greater losses occurred in certain cases in which there was marked sweating or blood loss. The component parts of the total loss are shown in the accompanying chart, emphasizing the relative importance of the insensible loss. The much greater amount of fluid lost by avenues other than the kidneys makes it clear that the commonly accepted clinical method of estimating the water balance by a comparison of the fluid intake with the urinary output is so inaccurate as to be worthless to the patient for whom an accurate maintenance of the water balance is necessary. We recognize the value of the specific gravity of the urine in giving an idea of the state of the water balance, granting that the concentrating power of the kidneys is normal or known. It is customary in many hospitals to chart graphically the fluid intake against the urinary output. The information thus obtained is adequate for the care of the ordinary patient operated on, but it does not represent the true water balance, as from 1,500 to 2,000 Gm. or more of insensible water may be lost by the patient in bed with fever. The body will still vaporize water in about the same amount to remove its heat even when the supply of water is so seriously diminished that anuria supervenes. There are certain sick patients undergoing operations in whom it is all important to maintain a proper supply of water. This can be done only by taking into account the water lost through the skin and lungs, vomiting and diarrhea, as well as that excreted through the kidneys.

Table 3.—*Result from Study of Four Hour Postoperative Period*

No.	Operation	Room Temperature	Covers	Fluid In: Mouth, Gm.	Fluid In: Infus. in Ven. Gm.	Fluid Out: Vomitus, Gm.	Fluid Out: Urine, Gm.	Impression of Visible Sweating	Insensible Loss + Visible Sweating, Gm.	Insensible Loss + Visible Sweating, Gm. per Sq. M. per Hr.
1	arcinoma of stomach	74	Spread, woolen blanket, sheet, woolen blanket, flannel blanket, gown	0	1,241	0	0	Slight	339	47.3
2		73		0	0	90	0	Moderate	411	63.0
3		78		0	1,842	0	0	Moderate	430	72.0
4	ndectomy	70		27	0	49	0	Slight	308	40.3
5		78		0	1,377	17	0	Marked	828	115.9
6		67		0	0	60	0	Slight	369	57.6
7	Excision teratoid tumor of abdomen	73		201	1,439	0	0	Slight	402	58.9
8	Radical breast amputation	72		478	800	423	147	Slight	315	43.6
9	Partial resection stomach, carcinoma	75		0	1,746	0	0	Slight	290	44.5
10	Colostomy	78		0	1,042	0	0	None	217	37.5
11	Repair inguinal hernia	73		0	60	0	0	Slight	344	56.9
12	Repair ventral hernia	78		0	95	0	0	Slight	367	52.1
13	Hemorrhoidectomy	76	Spread, woolen blanket, sheet, gown	0	0	0	0	None	211	31.7
14	Repair inguinal hernia	75		321	0	0	0	None	286	37.5
15	Appendectomy	76		0	0	0	0	None	140	22.1
16	Cholecystectomy	76		0	1,112	0	0	None	152	21.4
17	Appendectomy	76		0	0	0	0	Slight	186	31.4
18	Repair ventral hernia	72		0	480	0	0	None	126	19.4

Table 4.—*Comparison of Urine Output to Total Fluid Loss During Operative and Four Hour Postoperative Period*

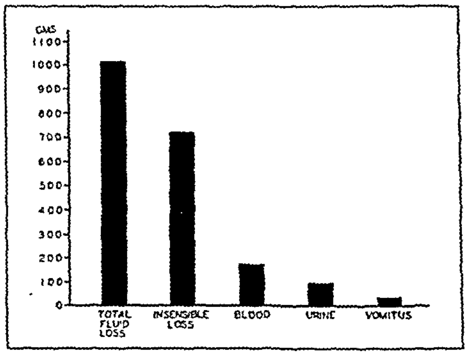
Patient	Total Loss: Vomitus, Blood, Insensible, Visible Sweat, Gm.	Urine Output Total Period, Gm.	Percentage Urine of Total Fluid Loss
1	983	115	10.47
2	988	82	7.66
3	891	75	7.76
4	1,137	105	8.45
5	1,314	113	7.92
6	837	125	13.29
7	1,129	82	6.77
8	2,717	437	13.85
9	1,161	84	6.75
10	327	56	14.62
11	616	95	13.86
12	629	86	12.03
13	360	103	22.23
14	529	175	24.86
15	328	123	27.27
16	247	249	50.20
17	266	172	31.97
18	473	163	25.63

Insensible water contains negligible amounts of inorganic salts, and in the amounts of water lost in these patients, the salt loss is not important in contradistinction to the fluid lost by vomiting, diarrhea or enterostomy, in which the inorganic salt is so important. Therefore, normal dextrose solution can be used to replace this component of the body fluids. The fact that the water lost by evaporation [2a] increases rapidly with the rise in environmental temperatures beyond 27 C. should make one inquire seriously as to whether it is wise to subject the patient, during the postoperative period, to such high environmental temperatures as are usually caused by excessive bed clothing.

SUMMARY

1. A study was made of eighteen patients on whom operations were performed to determine the body fluid lost during the operation and during the first four hours after operation.

2. During operation fluids were lost by vomitus, hemorrhage and insensibly through the skin and lungs. The amount lost by vomitus was not important; the amount lost by hemorrhage is often greater than the surgeon believes and varied with the type of operation from 8 to 1,272 Gm. The insensible loss plus visible sweating varied from 97 to 705 Gm., while this loss expressed in grams per square meter per hour is increased as high as nine times that of the basal state.



Components of average total fluid loss during operative period and four hour postoperative period.

3. During the first four hours after operation the principal water loss was through the lungs and skin, varying from 126 to 828 Gm. A comparison was made between two groups with different bed clothing. The water loss of the patients with lighter bed clothing was over 50 per cent less than that of the group placed in the routine "ether bed."

4. The factors increasing the insensible loss and sweating were the temperature of the environment, principally that produced by blankets, struggling under anesthesia and the anesthetic.

5. Under routine conditions, the total loss during the entire period averaged about 1 liter. It may be much higher in certain instances. The urinary output during this period averaged less than 10 per cent of the total fluid lost. A comparison of the urinary output with the fluid intake does not give a correct estimate of the water balance. Other factors of water loss such as vomiting and diarrhea are important and have been stressed. We wish here to emphasize another important source of water loss amounting to from 1½ to 2 liters a day by the continuous insensible vaporization from the lungs and skin.

ABSTRACT OF DISCUSSION

Dr. Thomas G. Orr, Kansas City, Mo.: Food and water, of course, may be taken by the average patient up to within a few hours prior to an operation. Certainly it is not necessary in the average case to give any cathartics at any time prior to the operation. One conserves the patient's water in anticipation of the insensible loss that must inevitably occur in a high percentage of the patients who are given ether anesthesia. The chief concern when considering this insensible loss of water, is in those patients who are greatly depleted before reaching the operating room, and in preparing these patients one must provide for this loss as well as for the loss occasioned by the lack of water and the lack of food. In other words, it is necessary to consider carefully the water balance and the metabolic balance and the chemical balance in this class of patients before one proceeds to do an operation. The results of dehydration are far reaching if the dehydration is extreme. There is a disturbance of the heat regulating mechanism, an increase of the viscosity of the blood, a decrease in the oxygen carrying capacity of the blood, a decrease in the kidney function, and a disturbance of the acid-base balance. All these may be of extreme importance, of course, if the dehydration proceeds to an advanced degree. A compilation by Dr. Rowntree a number of years ago showed the intake of secretions into the upper intestinal tract in a period of twenty-four hours. The intake of saliva, bile, gastric juice, pancreatic juice and the succus entericus into the upper intestinal tract, in other words, an intestinal circulation, which takes place every twenty-four hours, amounts to an astonishing quantity compared to the quantity of blood in the body. The daily secretion into the upper gastro-intestinal tract amounts to between 7 and 8 liters. This represents two or three times the average quantity taken by mouth in twenty-four hours, three or four times the quantity of urine excreted, and about twice the total volume of the blood of the body. One can readily appreciate the importance of this internal gastro-intestinal, tract circulation. Any disturbance of this circulation must necessarily upset the metabolism of the tissues. It is this point that I wish to emphasize. I recommend, therefore, that the members of this group give this paper further study when it has been published, and I further suggest, if they have not already done so, that they review the classic articles by Rowntree and Marriott; Rowntree on "Water Balance," Marriott on "Anhydremia," which have been published in *Physiological Reviews*. Every operator doing major surgery should familiarize himself in a general way with the water and chemical balance of the body before undertaking a difficult type of operation.

Dr. Isidore Cohn, New Orleans: The authors properly emphasize the loss of water by sweating during operation in patients who are covered or overcovered. Interesting experiments prove that the loss is greater in the patients who are covered by too many blankets. They further emphasize that the amount of blood that is lost is oftentimes greater than is realized by the surgeon. It is proper to emphasize these things but I do not believe that the importance of having the patient at least properly covered should be forgotten or overlooked because the lowering of the general body temperature may have more effect on the patient than the insensible loss of water through the lungs and by sweating. It should also be remembered that the insensible loss can be guarded against by preoperatively increased fluid intake. Vomiting can be diminished by postoperative administration of fluids by other than the oral route.

Dr. G. A. Hendon, Louisville, Ky.: Loss of heat can be avoided to a large extent by a simple procedure. After the abdomen is opened, if there is, in the judgment of the surgeon, an extensive operation in prospect, he can clip off the distal end of the appendix, cut and tie the meso-appendix, and insert a catheter with two or three sutures through it and the appendix to hold it in place; he can then fill the colon with water at any desirable temperature, which gives an internal hot-water bag. This measure can be pursued in the patient's bedroom and the water changed as it becomes cooler, and more warm water supplied. This will compensate for the loss of both heat and water, and the appendix will slough off in about one week. In no case have I seen a fistula result.

Dr. J. Shelton Horsley, Richmond, Va.: The authors call attention to a phenomenon that is frequently overlooked.

In the average surgical case, considerable amounts of fluid are lost, but in the average case the biologic mechanism works while we sleep, so that the loss is not usually felt. It is in the rather unusual case, the depleted case, the case of sepsis, the bad risk case, that this loss may turn the scale. The loss of heat, of course, has to be considered as well as the loss of water. Though not directly applicable to this discussion, the temporary loss of fluids, such as in shock, in spinal anesthesia, sometimes may occasion grave concern. This loss may be compensated for by natural methods, but the ordinary means of absorbing fluids are at least handicapped if not entirely abolished in many abdominal conditions. The patient may have peritonitis, obstruction or a gastric or intestinal operation in which the natural means of absorbing fluids are temporarily closed. The patient in shock or who has lost a large amount of blood is incapable of absorbing water from the intestine to any considerable extent. Dr. Matas called attention to a method of supplying fluids which will not only give abundant amount of fluid but give it without straining the function of the gastrointestinal tract, which in abdominal operations at any rate should have physiologic rest. That is the intravenous method introduced ten or twelve years ago, in which dextrose is given continuously into the vein. This method has been modified by Drs. Hendon, Gallie, Harris and others. Usually I give 5 per cent dextrose in normal Ringer's solution. It supplies not only an isotonic solution of dextrose but the ordinary electrolytes, not only sodium chloride but potassium and calcium as well. In spinal anesthesia, which I use occasionally, I have adopted the method of beginning the intravenous administration of fluid at the same time that the spinal anesthesia is begun through a needle or a cannula. It can be turned on in greater volume when the blood pressure goes down alarmingly, or it may be continued at a slow rate

Dr. Frederick A. Coller, Ann Arbor, Mich.: Those who have discussed the paper have added much that is practical. I did not mean to imply in the paper that the exact computations that were carried out are necessary to the well-being of every patient. Most surgical patients have been getting well for many years on the usual regimen, and if one will give a pitcher of water to a patient with a normal gastro-intestinal tract he will automatically maintain his water balance. On the other hand, this information may be of some importance to the very sick patient. I think one can give it as a safe general rule that if 2.5 liters is allowed for the first day, including the time of operation, and 2 liters a day from that time on, it will represent the amount of water being lost by the body through the lungs and the skin. If one wants to wash out toxins or do anything else with the water, one must use it in quantities above that amount. The amount of water that it is desirable to give to the surgical patient falls outside the scope of this discussion and is not touched on in this paper.

Essential Qualities of Research Workers.—Research workers must have imaginative minds and natural powers of observation. The essential qualities to be looked for in a research man are honesty, common sense, balanced enthusiasm, self-confidence, tenacity, system and method in keeping notes and in planning and carrying out experiments, and unreserved devotion to the problem in hand. If a man is not honest he may deceive himself and be led to draw conclusions from false results which will not stand repetition by other workers. If a man lacks common sense he is liable to be easily side-tracked, and is led to do foolish things in the name of research. If a man does not possess enthusiasm, he very soon becomes lazy and gambles away his time, but if he becomes overenthusiastic he may become carried away and arrive at conclusions too hastily. If he lacks self-confidence, he can never convince himself or others of the value of his work. The young worker must not become discouraged even if the trend of experiment goes against theory. If he has not the tenacity to continue he will often miss out and, because of incompleteness, his work will fail. The research man who lacks method and system is like a ship without a rudder. The young worker who has not an unreserved devotion for his work is not likely to succeed. I am a firm believer that if a person tries hard enough and long enough, he will achieve whatever he reasonably sets out to do.—Banting, F. G.: Medical Research, *New York State J. Med.* 32:311 (March 15) 1932.

TREATMENT OF CARCINOMA OF THE CERVIX

THOMAS E. JONES, M.D.
CLEVELAND

On scanning the literature since 1900 on the treatment of cancer of the cervix one finds that three periods are represented. During the first period the surgical treatment was emphasized and the reports consisted chiefly of descriptions of operations and surgical end-results. Then there was the period of controversy concerning the relative merits of surgery and radium. During the past ten years in this country and with few exceptions on the continent, most of the literature has dealt with radiation therapy, its technic and the end-results. An analysis of these results would seem to indicate that, for the time being at least, radium and the roentgen rays are the treatment of choice, not only from the standpoint of the rate of curability, but also from the standpoint of palliation, morbidity and economy.

In this paper, I am reporting a series of 420 cases of cancer of the cervix, in which the patients were examined, treated and observed during the period from 1920 to 1931, inclusive. In this group there were 302 cases of primary carcinoma; in 80 there were recurrences following operation or irradiation elsewhere, and in 18 the lesions were too far advanced for any possible treatment. Twenty patients in this group refused treatment or sought medical advice elsewhere.

I shall not take time to discuss the diagnosis of carcinoma of the cervix. It has been dwelt on time after time. Yet on reviewing my series of cases, it is not pleasant to have to admit that in patients examined in 1931 the disease was just as far advanced as it was in those examined in 1920, in spite of numerous articles written on the subject and in spite of the publicity given it by The Society for the Control of Cancer. Despite the fact that the cervix is an easily accessible organ, failure to recognize early cervical cancer has occurred in a discouraging number of cases. Delinquency on the part of the patient is sometimes responsible, but with increasing public education this is becoming less frequent, and still entirely too many failures are attributable to the remissions of the medical profession.

Diagnostic failures come about in two ways: The symptoms may be attributed to the menopause, and frequently consultation without proper examination leaves the patient with a false sense of security which leads to further delay. The lesion may be discovered but may not be recognized as malignant, being mistaken for an ulcer, erosion or eversion. In case of doubt a biopsy is imperative. The physician's hesitancy to do a biopsy may have resulted from the active discussion a few years ago of the danger of spreading the cancer in this way. Today that discussion is dead—so are many patients for lack of a biopsy. I have never seen any harm come from it and recommend its use in any doubtful case. It will save far more patients than it will harm.

Another fallacious opinion has been advanced in an effort to show that irradiation by both the roentgen rays and radium may cause distant metastases not seen heretofore. The literature shows that many distant and

---

From the Cleveland Clinic.

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

bizarre metastases were observed long before radium was used. If metastases are being observed more frequently now, it is because radiation has prolonged the life of the patient for sufficient time to make this observation possible. On noting the cause of death in my series, it was found that practically all the patients died with the disease confined to the pelvis with obstruction to the ureter only. Very few showed metastases to the liver, lungs and bones.

Any one who has treated a large group of patients is at once impressed by the varied individual resistance to cancer. Some patients with apparently advanced lesions respond better than those in whom the disease is recognized early. This variation in response is undoubtedly attributable to normal body defenses about which little is known. However, Broders has developed a method of evaluation of malignancy histologically, by which the prognosis in a given case may be expressed on a numerical basis, the cases being divided into four groups according to the degree of cellular differentiation. Following these lines, a tremendous amount of investigation has been carried on by other workers for the purpose of determining whether there is any definite relationship between the histologic structure of carcinoma and its relative malignancy and of trying to deduce from this finding the best form of treatment for the type in question and also of determining the prognosis. I have not been able to test this out in my series of cases, because I believe that a large personal equation enters into the problem and that direct, personal contact with Broders would be necessary in order to develop a precise duplication of his method. If not done properly, I am sure that such an attempted classification would lead to further confusion. Another complication, of course, is that sections from different portions of the tumor may give different histologic pictures which also may be misleading.

The clinical classification I use is that of the American College of Surgeons, which, for working purposes, is quite practicable except in regard to the question of involvement of the broad ligaments. It is often difficult at first examination to decide whether or not such involvement may be inflammatory or malignant, but time generally furnishes this information. I believe that cures in cases in which there is definite infiltration of the broad ligament are relatively few.

RATIONALE AND TECHNIC OF RADIUM THERAPY

For practical purposes, the simple idea that radium is a means of destroying cancer cells without too much injury to the normal cells is a good working hypothesis, but accumulating knowledge of the physics of radiation and of the biologic effects of radiation is leading to better understanding of its action. In brief, radium has a threefold action on malignant tissue: It affects (1) the cancer cells, (2) the connective tissue and (3) the blood and lymph vessels. The action on the cancer cell is shown microscopically by swelling and vacuolization of the protoplasm and by shrinking of the nuclei. This is followed by phagocytosis and absorption and replacement by homogeneous connective tissue. This contracts and affects the lymphatic and smaller blood vessels and starves the growth.

There is not sufficient time to enumerate the varieties of technic that have been used since radium therapy was instituted nor to mention all of the men who have contributed to the advancement of the present knowledge. Suffice it to say that there are two entirely different schools of thought in regard to the method of treatment. In one, the opinion is that it is best to give large massive doses within a short space of time, preferably in one or, at the most, two treatments. The other is that it is preferable to give very small doses over a longer period of time. I believe that most of the large clinics in this country favor the former view, while protagonists of the latter method are led by Regaud of the Radium Institute of Paris. This difference of opinion undoubtedly will be settled before many years elapse, when the results of both methods may be compared. Standardization of the dosage of radium used in treating uterine cancer is impracticable; the dosage and technic must vary with the character and location of the lesion.

The technic followed in the Cleveland Clinic has varied but little during the last ten years, the only change being that since a larger amount of radium has been available, larger doses have been given over a shorter period of time, and an effort has been made to give the complete dose at one sitting. Previously, the total irradiation was given in two doses. The average dose given in the first cases in my series was 4,200 milligram hours distributed evenly in and against the cervix. In later cases, since radium has been combined with roentgen rays of high voltage, the average dose is about 3,600 milligram hours. The standard screen is made of brass, 1.5 mm. in thickness, and this is encased in a rubber tube 3 mm. thick. At the present time a tube is placed in the fundus as well as in the cervix. This is done because in some patients who were treated earlier it was found that after being free from symptoms for a year or so, the patient suddenly had bleeding and discharge, and examination would reveal a large undermined cavity at the upper end of the cervical canal which had not been reached by the radium. It is necessary to anesthetize the patient in order to determine the extent of the new growth and to place the radium accurately. However, it is sometimes impossible, even when the patient is under an anesthetic, to place a tube of radium high in the cervical canal.

In addition to the radium tubes placed in the fundus and cervix, two or three tubes are placed against the cervix, and these are held in place by packing the vagina tightly with gauze. If the growth is of the cauliflower type, it is frequently curretted away or implanted with radium needles. A catheter is placed in the bladder in order to keep it empty and as far away from the radium as possible. Care should be taken in transferring the patient from the table to the cart and from the cart to the bed. Bending and twisting of the patient during the transfer may dislocate the vaginal tube and may account for bladder and rectal symptoms. The best method is to place the cart alongside the table and to slide the patient on the cart by means of a sheet, and to transfer her from the cart to the bed in the same manner, so that the position is unchanged throughout the procedure. Gold seeds have not been used in the treatment of any of the patients, but they are of great value in cases in which there has been recurrence, because their action is localized to a greater or lesser extent. Large heavily filtered doses frequently are harmful in the treatment of lesions that have recurred. In this series there has been no case in which gold seeds were placed in the broad ligaments by laparotomy. From three to four weeks after treatment with radium the patient returns to the clinic for a course of treatments with high voltage roentgen rays, given in five or six doses during a period of five or six days.

After patients have been treated they are requested to return at monthly intervals for three months, and afterward every three months during the following year. If local recurrences develop, they are treated by means of implantation of seeds. If the recurrence is deep, roentgen therapy is repeated, with marked relief for a time. In cases of intractable pain in the pelvis and down the legs, cordotomy may be done. Section of the sensory column in the cord affords amazing relief from pain.

COMPLICATIONS

The chief complications in the treatment of carcinoma of the cervix by radium are hemorrhage, symptoms referable to the rectum and bladder and fistulas, both urinary and fecal.

Hemorrhage.—This may be due to the natural progress of the disease or to ulceration caused by the radium. I believe that the natural progress of the cancer is the principal cause of hemorrhage. In the most serious cases packing and transfusion are sufficient to control the hemorrhage.

Bladder and Rectal Symptoms.—These symptoms are of two types, early and late, and it is quite important that they should be recognized. It is reasonable to assume that if a sufficient dose of radium is given to cure carcinoma of the cervix, it will also be sufficient to produce an erythema in the rectum or bladder. Frequently this erythema is slight and passes unnoticed unless the patient is questioned. If it is severe, it is evidenced by a burning sensation and a tendency to frequency of urination or defecation. In mild cases, the condition usually clears up within ten days or two weeks, but in severe cases from four to six weeks may be required. It is in the latter group, in which the symptoms persist, that late rectal and bladder complications may develop, usually six or eight months after the initial irradiation. These late symptoms frequently are mistaken for a recurrence of the carcinoma, and if the patient is given additional treatment with radium, irreparable damage may result. A clue to the true state of affairs is found in the fact that the symptoms are out of all proportion to the findings. There are severe pain and tenesmus, and the stool contains considerable blood and mucus. Digital examination causes greater pain than in the case in which there is recurrence of the malignant lesion. The patient is not cachectic. Proctoscopic examination reveals, approximately at the level of the cervix, a puckered scar or small ulcer with telangiectasis and considerable redness of the mucosa. The condition may be compared to an overtreated area on the skin which is healed by the formation of scar tissue through which fine vessels may be seen to course. In the rectum the scarring is subject to trauma and infection with subsequent ulceration, which causes the late symptoms.

The same general condition is to be found in cases in which there are late bladder symptoms. Cystoscopic examination may reveal an area of intense redness and, at times, ulceration. I have observed several cases of this type over a period of months, and a few over a period of two years. Occasionally the urinary salts will be found deposited in the slough in the bladder, and stones will be formed. For the rectal symptoms the treatment consists of rest in bed, cleansing of the lower part of the bowel and the injection of 3 or 4 ounces (89 or 118 cc.) of warm olive oil into the rectum twice a day. Occasionally an opium suppository is necessary. For the bladder symptoms rest, irrigation of the bladder and the instillation of gomenol are prescribed. Sometimes these bladder and rectal complications may not disappear for from four to six months.

Fistulas.—It is known that the natural progression of carcinoma of the cervix will cause a certain number of fistulas into the rectum or the bladder. In some of my earlier cases fistulas may have resulted from treatment of the carcinoma, but with present knowledge and the improved methods of treatment, I feel sure that the incidence of fistula will be lower than in cases in which the patient has received no treatment at all. If the fistula appears soon after treatment, it is interpreted as being due to destruction from the disease. If it appears late and there is no evidence of recurrence of the carcinoma, it probably is due either to progressive ulceration or to the later complications mentioned, and hence is the direct result of the treatment with radium.

The method of treatment of a fistula in the rectum must depend on its size and the amount of inconvenience it causes the patient. A small fistula may not require treatment. If a large fistula is present, it may be advisable to do a colostomy before attempting to repair it and to close the colostomy if and when the repair is successful.

Results in Treatment of Carcinoma of the Cervix

	Year	Treated	Traced	Number	Per Cent
Living over 5 years.... ...	1920	8	8	2	25
	1921	17	15	4	24
	1922	22	21	5	23
	1923	26	23	5	20
	1924	24	21	7	30
	1925	21	17	5	25
	1926	30	25	9	27
		148	130 90%	37	25
Living 3 to 5 years........	1927	32	26	9	28
	1928	13	10	4	30
		45	36 80%	13	29
Living 1 to 3 years........	1929	48	42	24	50
	1930	35	31	19	54
	1931	32	32	28	87
		115	105 90%	71	61

The urinary fistula is more annoying on account of the constant flow of urine. If the fistula is small, it can be repaired easily by operation. If it is irreparable, the patient may be made more comfortable by transplantation of the ureters into the sigmoid.

Of the total number of patients with primary carcinoma of the cervix coming to the clinic, some attempt at treatment has been made in 93 per cent. The remaining 7 per cent were moribund on admission. The accompanying table gives the statistics of the results of treatment in 303 cases of primary carcinoma of the cervix from 1920 to 1931, inclusive. All patients not traced are counted as dead. It will be seen that of 148 patients treated over five years ago, 37, or 25 per cent, are alive and well. Twenty-nine per cent are living after from three to five years, and 61 per cent are living under three years.

With increasing facilities throughout the country to take care of these patients, it seems to me that the biggest problem still remains, that of getting the patients to seek medical advice when the disease is still in an early stage.

ABSTRACT OF DISCUSSION

Dr. W. P. Healy, New York: In cancer of the cervix, early diagnosis is impossible except by accident. The majority of the cases of cancer of the cervix begin beneath the mucous membrane, are of the anatomically infiltrating type, and fail to give symptoms while they can be regarded as early cases. The only symptom the woman has which may lead her to suspect cancer is the appearance of blood as the result of contact, following intercourse or the use of a douche tube, or occurring between periods from ulceration. She cannot have bleeding without having destruction of tissue, and destruction of tissue must mean open lymphatics, through which cancer cells are readily disseminated beyond the primary focus. This is why early cases are not seen. Ninety-four per cent, approximately, of these cancers of the cervix develop in women who have borne children. I believe more attention should be given to prophylaxis in cancer of the cervix, probably much more than to treatment. A report from the clinic of Dr. Graves, at the Brookline Free Hospital for Women in Boston, indicated the great value of the use of the cautery in the treatment of nonmalignant cervical lesions. In approximately 2,500 of their cases so treated with the cautery for benign lesions of the cervix, over a period now of many years up to the present time, in no single instance has cancer appeared in any of those cervices subsequently. On the other hand, in cases of cervical disease which they regarded as suitable for plastic surgery, their pathologist reported cancer of the cervix as an accidental finding in some of the cases. If the same men, therefore, made an error of diagnosis in a case that they thought suitable for plastic surgery, it seems to me reasonable to assume that they must have used the cautery in treating cases of early cancer of the cervix through an error in diagnosis, and certainly they cured the patients, because in no single instance of the 2,500-odd cases has cancer appeared. Therefore, I believe it is the duty of physicians to follow cases of pregnancy more closely in their first six months post partum than is customary, because with the present-day methods of office treatment of cervical lesions with a cautery, the cervix can certainly be restored to a normal condition readily and easily.

Dr. Wallace Frank, Louisville, Ky.: From 1917 to 1927 I treated 180 cases of primary carcinoma of the cervix. A follow-up was conducted on those last October, and replies were received from about 100. It must naturally be assumed, therefore, that the other 80 patients are dead. Many of the cases were well advanced and were treated for palliation alone, to relieve the bleeding and to relieve discharge. Of the number of cures of patients who are alive from five to fourteen years after treatment, there are thirty-four, giving a percentage of cures of 18.9. Dr. Healy just remarked about the rarity of finding early cases. In my 180 cases there were but 15 early ones, and 12 of the patients are now alive; one lived eight years and died of apoplexy without any return of her disease, and two are dead, giving a proportion of cures in the early cases of 86.4 per cent. I might say that all these patients were treated by x-rays and radium or by radium alone. I am not operating on cancers of the cervix any longer. In but two cases did fistulas develop and those came on between eight and twelve months after treatment and consequently I was certain that they were due to the natural progress of the disease rather than to irradiation. It has been my observation that cancer of the cervix is being seen in younger women, and a larger percentage of cases in the past five years has occurred between the ages of 30 to 40. It is important, therefore, to suspect malignancy at this period of life and carefully examine the patients so that early growths will not be overlooked.

Dr. James E. Davis, Detroit: With regard to the early diagnosis of cancer of the cervix, it probably would be of great advantage if physicians were obliged to take about thirty or thirty-five minutes to examine a cervix suspected of carcinoma. Further, I think the safety of the patient would be advanced about 15 per cent if cancer structurally grew with a number of thorns around the peripheral surface. I say that because then the cancer would be handled gently. In the practical examination of the cervix I believe great aid can be secured if one will divide the cervix into two planes (I am speaking now of the cervix in the early stage of cancer growth): one plane to include that part of the cervix which one is reasonably sure is not involved in the cancer process, and the other plane to include the parts suspected. One's examination might begin with a careful survey of the surface that is covered by the stratified epithelium, and if one has not tried this practice of examining critically and slowly the stratified epithelial surface, one will be surprised how much one will learn by taking adequate time and using one's eyes critically in the examination. Secondly, one might aid the ocular examination by using some simple tissue stain and observing the deeper intensity of the stain in the carcinomatous tissue if there is any present. Further, the division of carcinoma into two groups only would simplify our understanding. One might be called the adenocarcinoma, which is the smaller group, perhaps not making up a higher percentage than 6; the other group is the epidermoid type of carcinoma. That would simplify many of the problems of the pathologist and I think some of the problems of the clinician. In regard to the obtaining of biopsy material, if a sharp knife is used and one keeps on cautioning oneself about avoiding unnecessary manipulation of the cervix, one can take a biopsy section, I am quite sure, without scarcely any danger to the patient. The manipulation of the cervix is an exceedingly dangerous procedure.

ENDEMIC EDEMA

JOHN B. YOUMANS, M.D.
NASHVILLE, TENN.

Nutritional edema may occur in epidemics in populations whose diet is inadequate for a time, as happened in the Central Powers during the World War.[1] It may exist in endemic form in populations whose diet is always more or less inadequate, as in China.[2] It also appears sporadically, most often because of some disease which interferes with the proper intake or absorption and utilization of food.[3] Since the World War it has been shown conclusively that the disease is associated with a hypoproteinemia, presumably due to an insufficient intake or utilization of protein.[4] A similar edema, with an accompanying hypoproteinemia, has been reproduced experimentally in animals by feeding a diet low in protein.[5] Recently other studies have emphasized the important relationship between the plasma proteins and certain forms of edema.[6]

In this country studies of nutritional edema have dealt with sporadic cases, and the existence of endemic nutritional edema has scarcely been suspected. For several years, however, cases of edema have been observed at the Vanderbilt University Hospital which are apparently nutritional in origin.[7] Except for incidental and unrelated conditions, they are not accompanied by other disease. Most of the cases have occurred

---

From the Department of Medicine, School of Medicine, Vanderbilt University.

Read before the Section on Practice of Medicine at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

1. Schittenhelm, A.: Ödemkrankheit, in Enzyklopaedie der Klinische Medizin, Berlin, Julius Springer, 1927, p. 738.
2. Meleney, Henry E.: Personal communication to the author.
3. Peters, J. P.; Wakeman, A. M., and Eisenmann, A. J.: The Plasma Proteins in Relation to Blood Hydration: III. The Plasma Proteins in Malnutrition, J. Clin. Investigation **3:** 491, 1927. Bruckman, F. S.; D'Esopo, L. M., and Peters, J. P.: The Plasma Proteins in Relation to Blood Hydration: IV. Malnutrition and the Serum Proteins, ibid. **8:** 577, 1930. Landis, E. M., and Leopold, S. S.: Inanition Edema Associated with Tuberculous Enteritis, J. A. M. A. **94:** 1378 (May 3) 1930.
4. Schittenhelm (footnote 1). Peters et al. (footnote 3). Bruckman et al. (footnote 3). Landis and Leopold (footnote 3). Weech, A. A., and Ling, S. M.: Nutritional Edema: Observations on the Relation of the Serum Proteins to the Occurrence of Edema and to the Effect of Certain Inorganic Salts, J. Clin. Investigation **10:** 869, 1931.
5. Frisch, R. A.; Mendel, L. B., and Peters, J. P.: The Production of Edema and Serum Protein Deficiency in White Rats by Low Protein Diet, J. Biol. Chem. **84:** 167, 1929.
6. Leiter, L.: Experimental Nephrotic Edema, Arch. Int. Med. **48:** 1 (July) 1931. Barker, M. H., and Kirk, E. J.: Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients, Arch. Int. Med. **45:** 319 (March) 1930.
7. Youmans, John B.; Bell, Austin; Donley, Dorothy, and Frank, Helen: Endemic Nutritional Edema. I. Clinical Findings and Dietary Studies; II. Serum Proteins and Nitrogen Balance, to be published.

in the spring and early summer. In late summer new cases fail to appear and the others tend to lose their edema. Occasional cases are seen during the fall and winter. The edema is from slight to moderate in the majority, involving the feet and legs most often, but sometimes the face and hands as well. Some of the patients have complained of mild pain and tenderness in the extremities. Most of the patients are women and all ages are included. The duration of the edema has varied from a few days to years, the edema occurring intermittently in the latter group. Only about one half of the patients have been underweight and a few have been obese. In nearly all, however, a loss of weight preceded the onset of edema. The absence of other causes and the number of cases suggested that this edema was nutritional in origin although there was no unusual cause for undernutrition and at the time the first cases were detected the economic situation was generally satisfactory. It was known, however, that the customary diet of a large part of the population in this part of Tennessee was such that the protein content might be low. Preliminary studies showed the total serum protein to be normal or higher than normal. Later, studies of the protein fractions showed that though the total was usually normal there was a slight to moderate reduction in the serum albumin, the normal total being due to a high normal, or abnormally high, globulin. So far, more than fifty of these cases have been observed and a number have been studied in some detail. The investigation has included, among other things, an investigation of the diet, determinations of the serum proteins and studies of nitrogen balance. A number of the patients have been followed over periods of weeks to years and the course of the disease under various conditions has been observed. All but two of the patients have been studied exclusively in the outpatient department.

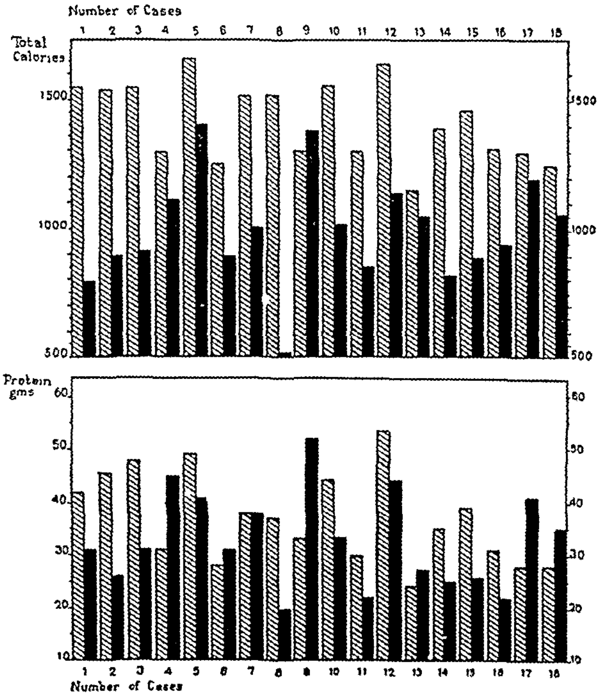


Chart 1.—The average total calory and protein intake per day of eighteen patients with nutritional edema. In each instance the calculated basal caloric requirement and minimal protein requirement (0.6 Gm. per kilogram) are presented for comparison. The solid columns represent the actual intake and the shaded columns the calculated requirements, each pair of columns representing a single case.

DIET

A study of the diet was made by having the patient keep an accurate record of the food eaten for a number of days. Printed slips were provided on which the amounts and kind of food taken each day were recorded and from which the average daily intake of protein, animal protein, carbohydrate, fat and total calories was calculated. The procedure was carefully explained to the patient, not only by the physician but by a social worker who sometimes visited the patient at home to assist in keeping the record and check its accuracy. Part of the data from eighteen cases are shown graphically in chart 1. In every instance but one the caloric value of the diet was below the calculated basal requirements. Since all were outpatients and more or less active, the actual deficiency was much greater. The average daily intake of protein was low, ranging from 20 to 52 Gm. daily and in twelve was at or below the usually accepted minimum (0.6 Gm. per kilogram). In the others it was below 1 Gm. per kilogram. Although the records are believed to be fairly accurate, the total number of calories was probably somewhat greater than is recorded. Considerable amounts of fat were used in cooking, and have not been taken into account. The daily records showed considerable variation, and had the study been made over a longer period it is probable that a higher average would have been found. The study was made when the edema was present, and the diet may have been unusually poor at that time. No allowance has been made for the availability and character of the protein or for the possible loss of protein in the stool, which may have been

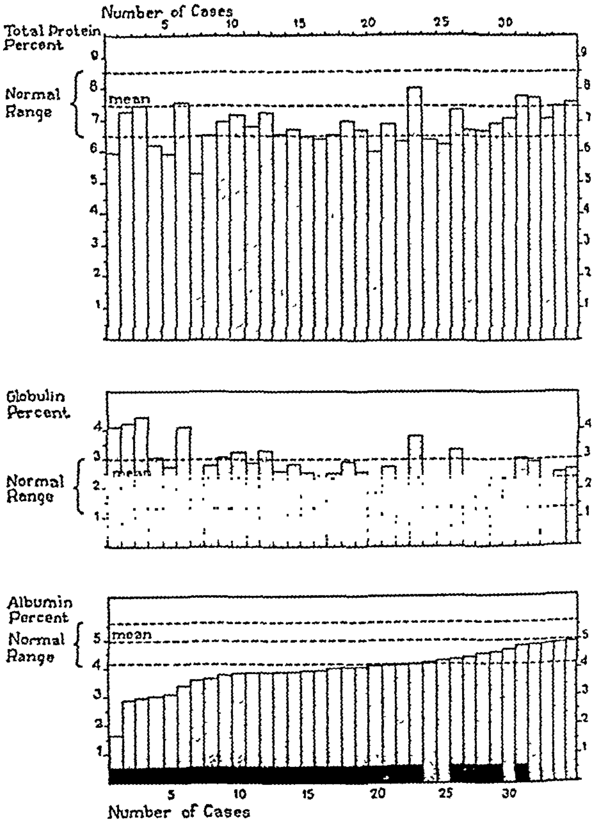


Chart 2.—The initial determination of the serum proteins in thirty-five cases of nutritional edema, arranged in ascending order of the values for serum albumin. Each column represents an individual case. The shading in the bottom columns indicates the presence of edema. In the nonedematous subjects edema had been present before the serum proteins were determined.

greater than usual. It must also be remembered that a minimum protein intake is sufficient only when the calories are abundant. In general, it appears that the diet of this group was characterized by a caloric intake which was always near, and frequently dipped below, the bare maintenance level and by a minimum amount or less of protein. It is probable that the deficiency had existed for a long time in most instances, perhaps for a greater part of the patients' lives. There is reason to believe also that the character of the diet was not due solely to economic causes, but was partly the result of custom and habit.

SERUM PROTEINS

The initial serum protein values[8] in thirty-five cases are shown in chart 2. In most instances the total protein is within the normal range. Values below the lower limit of normal are found in only nine, but in twenty-three the total protein is below the average normal. The albumin protein shows more significant changes. The individual values range from 1.72 to 4.97 per cent, with an average of 4.00 per cent, which is distinctly below the normal lower limit. More significantly, the individual values are at or below the lower limit of normal in twenty-two of the thirty-five. In contrast to the albumin, the globulin is above the normal average in all but eight cases, and in eleven is above the upper limit of normal. The globulin is not below the lower limit of normal in a single case. Thus, the high globulin accounts for the normal total protein. The inclusion of cases without edema is explained by the fact that in some instances the examinations were not made until after the edema had disappeared. The presence of edema with a normal albumin may be due in part to a lag in the disappearance of the edema, and in most of these instances the edema was absent a short time later.

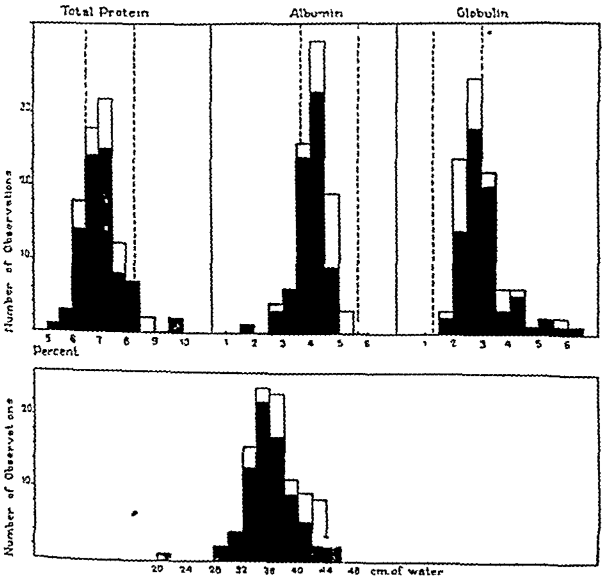


Chart 3.—The relation of the serum proteins and of the calculated colloid osmotic pressures of the serum to the edema. The osmotic pressures have been calculated by the use of Govaerts' factors (Bull. Acad. roy. de méd. de Belgique 7: 356, 1927). The black areas indicate the presence of edema. The broken lines indicate the "normal" range.

In the patients who were followed a sufficient length of time the edema tended to disappear when the protein in the diet was increased and as the serum albumin rose. This relationship was obscured, however, by the lag in the disappearance of the edema, the inability to control accurately the diet and activities of the patients and the irregular intervals between observations. Furthermore, there were spontaneous fluctuations in the edema which could not be related to any known cause. It is interesting that a considerable period of time was necessary before the serum proteins returned to normal. This was not due entirely to a failure to take the diet recommended, as shown by the fact that one of the patients was treated in the hospital with a high protein diet for ten days with little effect on the serum albumin, which did not reach its maximum until some weeks after the patient was discharged, though the same diet was continued. It is possible, since the albumin continued to rise, that nitrogen retention persisted during this period, though neither the present studies nor those of others had been continued sufficiently long to demonstrate this. The observations suggest that in nutritional edema the depleted nitrogen stores of the body are replenished before the blood proteins are greatly increased or that some difficulty exists in the absorption or utilization of protein.

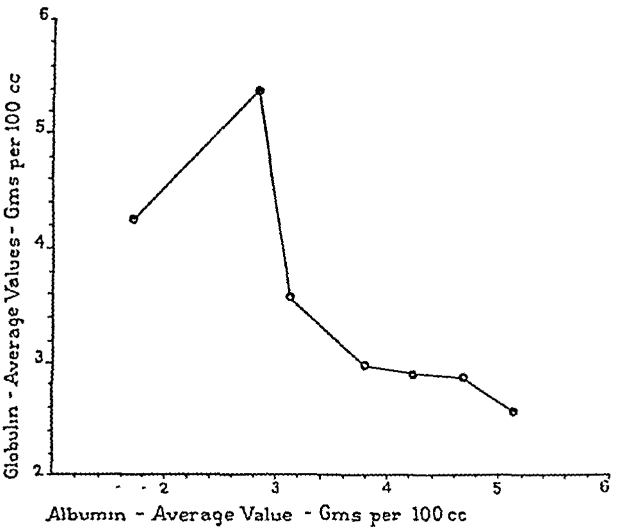


Chart 4.—In this figure the average values for each group of albumin determinations at 0.5 per cent intervals (1.50-1.99, 2.00-2.49, etc.) have been determined and the average values for the corresponding globulin determinations plotted against them. The first point represents a single determination only. The tendency for the globulin to fall as the albumin values rise is evident.

In attempting to correlate the changes in the serum protein with the presence or absence of the edema the data obtained by repeated examinations of some of the patients were combined with the results of the initial determinations. One hundred determinations were available for this purpose (chart 3). No correlation was found between the total protein, which was usually normal, and the presence or degree of edema. There was some apparent relation between the lowered albumin and the presence of edema, but for reasons to be discussed it is not very close. There was a tendency toward an opposite relationship in the case of globulin, and high values for globulin were often found associated with edema. It is interesting to compare these observations with the correlation between edema and the total colloid osmotic pressure. Since albumin has an osmotic pressure approximately four times that of globulin, it is to be expected that a decrease in the former would cause a significant drop in colloid osmotic pressure in spite of a normal or increased globulin. Correlation is not greatly improved, however, probably because of the same factors that are active in the case of the albumin.

---

[8] The serum proteins were determined by the use of Howe's method for fractioning the proteins (J. Biol. Chem. 49: 93, 1921) and the macro Kjeldahl procedure. A more complete description will be published later. The standards of normal that were adopted are: average values, total protein 7.30 per cent, albumin, 5 per cent, and globulin, 2.3 per cent; normal range, total protein from 6.5 to 8.5 per cent, albumin from 4.2 to 5.7 per cent and globulin from 1.3 to 3.0 per cent.

An increase in the serum globulin occurred too often and was too great to be considered merely coincidental. Neither is there any evidence that the high globulin was the result of such factors as infection. It was observed that as the albumin fell the globulin tended to rise and vice versa. This relation between the globulin and albumin is shown in chart 4. I believe that it represents a compensatory reaction, which is usually incomplete and insufficient to prevent the formation of edema.

Studies of the nitrogen metabolism in two patients showed a slightly negative nitrogen balance when they were placed in bed and given the same diet that they were taking when the edema developed. Increasing the nitrogen intake resulted in a slight to moderate retention of nitrogen, which was not, however, associated with a prompt increase in serum albumin. However, in one case which was followed over a sufficient period the albumin gradually rose to normal and the edema disappeared.

COMMENT

These cases of edema differ in several respects from cases of nutritional edema reported by others, particularly those seen during epidemics. In general, the disease is milder and the patients are less severely undernourished. The symptoms of severe undernutrition, bradycardia, hypotension, subnormal temperature, lowered metabolic rate, etc., are lacking. The absence of any disease causing the malnutrition distinguishes them from most of the sporadic cases. The changes in the serum protein are consistent with the mild nature of the symptoms. Greater reductions in the serum proteins have been reported by other writers. In some instances variations in the methods are responsible for the difference. Much more important is the difference in the severity of the disease and the circumstances under which the present studies were made. A lowered osmotic pressure due to lessened serum proteins is but one of the two principal factors at present thought to be concerned in this form of edema and determines *only a tendency* to edema. The other factor is capillary pressure, and the occurrence of edema probably depends primarily on the balance of force between the capillary pressure tending to push fluid out of the vessels and the osmotic pressure tending to hold it in. An increase in capillary pressure can cause a filtration of water from the blood in the presence of normal amounts of protein. Krogh, Landis and Turner[9] have recently shown that the erect human being is always near edema. Therefore, even a slight reduction in serum protein might result in the formation of edema, provided the capillary pressure remained unchanged, and edema would be more apt to occur if the capillary pressure were increased. All the patients studied were ambulatory patients, more or less engaged in their usual activities, and it might be expected, therefore, that edema would occur at higher concentrations of serum protein than in patients who were confined to the hospital and whose activities were greatly restricted. The influence of the restriction of physical activity is well shown by the two patients who were hospitalized and who quickly lost 4 and 2 Kg., respectively, with little or no change in the diet.

The lack of closer correspondence between the changes in the serum albumin and the occurrence of edema is possibly the result of several factors, among which are the influence of physical activity, the lag in the appearance or disappearance of the edema, uncontrolled variations in salt and water intake, the intermittent and chronic nature of the disease, variations in the serum globulin and the irregularity and infrequency of the observations in the cases in which repeated observations were made. Nevertheless it is possible that other factors, as yet unknown, may be concerned with the development of edema in these patients.

These cases have an importance out of all proportion to the mildness of the symptoms. They represent, I believe, the effect of a dietary inadequacy of slight degree but long duration. In the past, interest has been focused on relatively acute and well developed cases of deficiency disease in which there exist gross inadequacies. At present attention is being directed to milder and more chronic disorders, to the effect of minimum or suboptimum conditions of diet, rather than severe deficiencies. Disease which is the result of gross inadequacy may be of greater individual importance, but, on the other hand, is more easily and earlier detected and remedied. Less serious errors in diet, with their greater frequency and more subtle effect on a population, are of vastly greater general importance. In the present cases the edema itself probably has little harmful effect on the patient. If, as seems likely, the principal dietary inadequacy in these cases is a lack of protein, the edema is important only so far as it indicates a prolonged but mild protein insufficiency. Relatively little is known regarding the effect of such a deprivation in man or what constitutes the optimum amount of this food substance. Certain older studies, such as those of Chittenden,[10] have indicated that bodily health and vigor are not only maintained but even improved on an amount of protein much lower than is ordinarily considered necessary. More recent studies have challenged this belief. McCollum,[11] who favors a higher protein intake, has pointed out, for example, that the nine months' period of Chittenden's experiments represents but 1 per cent of man's normal life span, a period too short to warrant far-reaching and final conclusions. It is true that in man no clearcut symptoms or syndrome results from a long-continued minimal intake of protein. On the basis of animal experiments and general clinical observation it has been suggested that a minimum amount of protein results in diminished resistance to disease, lessened fertility, early senility, anemia and a significant decrease in mental and bodily efficiency and stamina. The present study has not included an investigation of the occurrence of such disorders among the subjects. Neither can great significance be attached to general clinical observations. Nevertheless it seems fair to state that experience among the population from which these patients are drawn has indicated a high incidence of many of the conditions listed. One is also led to the consideration of a possible relation between the dietary insufficiency and certain social and economic characteristics of the same population. For the present, however, these observations are, at most, only suggestive. It is realized that the diets that have been recorded may be inadequate in other respects than protein. They are known to be at least close to the bare maintenance level in total calories. Pellagra occurs among this same group of patients. In spite of a considerable intake of leafy vegetables there is reason to believe that this diet may be lacking in the important vitamin B. Many of the disease conditions which might be ascribed to a lack of protein are also attributed to a lack of other specific food substances. It is difficult under clinical conditions to study the results of an inadequacy of single food constituents; multiple deficiencies nearly always exist. It is likewise difficult to understand why with closely similar diets some patients will develop pellagra, others anemia and still others a nutritional edema. Yet the occurrence of such an edema, with changes in the serum proteins in persons whose diets contain a minimum of protein or less cannot but suggest the importance of protein in the diet and a possible relation between a deficiency of protein and other abnormal conditions encountered in these patients.

---

[9] Krogh, A.; Landis, E. M., and Turner, A. H.: The Movement of Fluid Through the Human Capillary Wall in Relation to the Venous Pressure and to the Colloid Osmotic Pressure of the Blood, J. Clin. Investigation **11**: 63, 1932.

[10] Chittenden, R. H.: The Nutrition of Man, New York, Frederick A. Stokes Company, 1907.

[11] McCollum, E. V., and Simmonds, N.: The Newer Knowledge of Nutrition, ed. 4, New York, the Macmillan Company, 1929.

SUMMARY

Cases of edema, apparently nutritional in origin and endemic in nature, have been observed in this clinic. The usual diets of the patients have been found to be low or minimal in total calories and in proteins. Studies of the serum proteins have shown the total protein usually within the limits of normal, the serum albumin slightly to moderately reduced and the globulin normal or increased. The edema has shown an irregular tendency to disappear as the protein intake is increased and as the serum albumin rises. The significance of these observations is discussed

ABSTRACT OF DISCUSSION

Dr. Roy H. Turner, New Orleans: There is a great contrast between the presence of slight edema in Dr. Youmans' cases, with an almost normal serum protein concentration, as compared with some of the patients one sees with pellagra who have an extreme diminution in serum proteins and also have little or no edema. The tendency to edema in pellagra usually is extremely slight, whereas the tendency to edema in spite of almost normal serum proteins is marked in the patients described by Dr. Youmans. It is easy to guess at some of the causes, but one can't be sure of the explanation. Certainly, pellagrins lying in bed, and they tend to lie quietly indeed, do not have the high capillary pressure, very likely, that exists in the dependent portions of the erect body. They also suffer from diarrhea, which offers a ready means for the escape of fluids and salts from the body. The two groups certainly illustrate the necessity for common sense explanation coupled with accurate observation in the interpretation of laboratory data. It is fascinating to speculate whether beriberi in a mild form plays a part in this condition. Dr. Youmans intimated that it might, but I should like to have him make a more definite statement in that direction. It seems that it is not yet known why edema is present in the wet form of beriberi. When attention was recently centered on lower protein concentration of blood serum, many people assumed that this was the cause of the edema in wet beriberi. So far no one has reported the proper observations; recently, however, I have had personal communication that such observations have been made in China, and there is not a diminution in the concentration of protein there. Whether there is another vitamin having to do with edema that is independent of the antineuritic factor is not generally believed, and yet there are those who do not believe that heart failure is the cause. I think Dr. Youmans has stated that antineuritic vitamin has not been effective in these cases. I should like to know more definitely about that.

Dr. John B. Youmans, Nashville, Tenn.: A number of these patients were digitalized on the supposition that they were cases of mild cardiac failure, but most of them continued to get more edematous. I should like to emphasize that additional factors are involved in the edema. The principal factors concerned are supposed to be the lowering of the serum proteins and the capillary pressure, one balanced against the other, but salt and water intake, for example, are extremely important. A patient is now being treated whose edema can be increased or decreased at will by giving or withholding salt and water. I know of no final means of proving that these are not cases of mild beriberi. The only thing to suggest beriberi has been the edema, and the slight pain and tenderness in the extremities. It is curious that among so many mild cases there should be no clear-cut cases of beriberi, if this condition is beriberi. None of the patients have shown definite peripheral nerve changes. I have tried vitamin B in the form of brewers' yeast and have not been able to satisfy myself as yet that it has any definite effect on the disease.

ULTIMATE RESULTS FROM OPERATIONS ON THE BILIARY TRACT

E. STARR JUDD, M.D.
AND
JAMES T. PRIESTLEY, M.D.
Fellow in Surgery, the Mayo Foundation
ROCHESTER, MINN.

The true criterion for judging the merit of various types of operations for benign lesions, aside from consideration of immediate operative risk, resides in an accurate appreciation of the ultimate benefit to the patient. Unfortunately a true evaluation of end-results over a long period of time is always difficult; questionnaires are frequently unsatisfactory and personal interviews often impossible. The data presented here were culled from replies to a questionnaire sent to all patients operated on at the Mayo Clinic for benign disease of the biliary tract in the years from 1907 to 1910, inclusive. Many of the letters were discarded because they were vague or indefinite, and the information could not be accurately classified. An effort was made to arrange the available material in a manner suitable for judging ultimate prognosis and evaluating current operative procedures.

From 1,652 questionnaires, 606 satisfactory replies were received, either from the home physician or, in most instances, from the patients themselves. Sixty-four of the patients had died recently, but full information concerning their condition was obtainable. Of the entire group of 1,652 patients, 312 are known to be dead. From the point of view of diagnosis, complete data were obtained concerning 534 patients with cholelithiasis and 72 patients with cholecystitis without stones. From a surgical point of view, information was obtained concerning 426 patients following cholecystostomy, 121, following cholecystectomy and 59 subsequent to some type of operation on the common bile duct. An additional group of 53 patients originally operated on at the clinic between 1907 and 1910 and who returned to the clinic for further operation of the biliary tract will be considered separately, since late follow-up data were not obtained concerning all of them. However, the nature of the secondary operation and lesions encountered supplements our information concerning the first group, some of whom had subsequent operations performed elsewhere.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

During the twenty-two years or more that have elapsed since these patients were operated on, the trend of surgery has kept abreast with growing knowledge of the physiology of the liver and biliary tract with the result that operative procedures have been somewhat altered and improved. The ultimate physiochemical basis for the cellular functions of the liver and its associated system of ducts both in health and in disease remains an enigma that must be solved before a thorough understanding and true appreciation of hepatic and biliary disease can exist. When this information is available, present-day surgical procedures may be greatly altered.

PREOPERATIVE DATA

During the earlier years only a relatively few patients (13.3 per cent) were subjected to operations on the biliary tract unless gallstones were present. It is now realized that in many cases the patient derives considerable benefit from removal of an infected gallbladder or drainage of the common bile duct for the treatment of cholangeitis whether or not stones are present at the time of operation. Many diseases of the gallbladder are now recognized sufficiently early to permit surgical treatment prior to the inevitable formation of calculi. As has been shown repeatedly, most patients with cholecystic disease are women; 80 per cent of those with cholelithiasis and 70 per cent of those with cholecystitis without stones were women. The difference is possibly accounted for by the cases of metabolic cholecystitis in which stone is so prone to form, and which are far more common among women than among men. The proportion of unmarried women is equally small in both groups (5 per cent). The average age for all patients was 42 years. The symptoms were much the same as are now observed, with the possible exception that they were usually more marked before surgical treatment was instituted.

Table 1.—*Cholecystitis with Cholelithiasis, Results More Than Twenty Years After Operation (534 Cases)*

Operation	Cases	Per Cent		
		Satisfactory	Unsatisfactory	Reoperation
Cholecystostomy..	376	58.6	24.4	17.0
Cholecystectomy	100	83.0	17.0	0
Choledochostomy and cholecystostomy	43	76.8	16.3	6.9
Choledochostomy with or without cholecystectomy.	15	86.6	13.4	0

Table 2.—*Cholecystitis Without Cholelithiasis, Results More Than Twenty Years After Operation (72 Cases)*

Operation	Cases	Per Cent		
		Satisfactory	Unsatisfactory	Reoperation
Cholecystostomy..	50	62.0	26.0	12.0
Cholecystectomy..	21	85.7	14.3	0
Cholecystostomy and choledochostomy	1	100.0	0	0

GENERAL RESULTS

Recurrence.—In general, cholecystectomy afforded results distinctly superior to those afforded by cholecystostomy. This was equally true regardless of the presence or absence of stones. Tables 1 and 2 illustrate the number of cases and the general results for the entire series of cases of cholelithiasis and of cholecystitis without stones. Good results were obtained following cholecystostomy in 60 per cent of cases, and following cholecystectomy in about 84 per cent. In none of these cases was a secondary operation required. A few patients had a recurrence of colic after the gallbladder had been removed. This was suggestive of disease of the gallbladder, but in no case was the condition sufficient to warrant operative treatment. During recent years we have encountered a definite group of cases in which, after a variable length of time following cholecystectomy, there is a typical clinical picture of stone in the common bile duct, except that jaundice is slight or more commonly absent. At exploration stones are not discovered and the underlying pathologic change appears obscure; however, symptomatic relief is complete following prolonged drainage of the common bile duct with a T-tube.

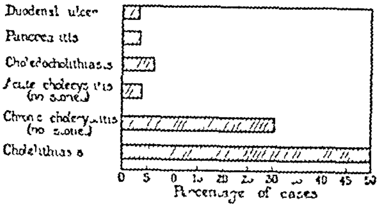


Chart 1.—The type of lesion encountered in fifty three cases in which a secondary operation was required following an initial cholecystostomy. A preponderance of cases of cholelithiasis may be noted

After an initial cholecystostomy for stones, there was a very definite group of cases (17 per cent) in which a recurrence of the trouble necessitated another operation on the gallbladder. The group in which symptomatic relief was incomplete was larger in cases in which the gallbladder was drained than in those in which it was removed. If the common bile duct is opened, in addition to some type of operation on the gallbladder, the percentage of satisfactory results seems to depend largely on whether the gallbladder is drained or removed. There is a greater possibility of later recurrence of stones in the common bile duct if cholecystostomy rather than cholecystectomy is performed at the original operation. This is in accord with the hypothesis that the majority of gallstones unquestionably develop within the gallbladder with the exception of the stones of pure pigment or calcium bilirubinate, which apparently form in the ducts themselves. Relatively speaking, this is an uncommon type of stone, and if all calculi are removed from the common bile and hepatic ducts at the first operation and cholecystectomy is performed at the same time, recurrence of stones in the common bile duct is extremely rare. Recurrent choledocholithiasis was not encountered in any of these cases following choledochostomy and cholecystectomy. Following choledochostomy and cholecystostomy there was recurrence in 6.9 per cent of cases which necessitated further operation because of the condition of the gallbladder or common bile duct. It seems reasonable to assume that the presence of a diseased gallbladder would predispose to the occurrence

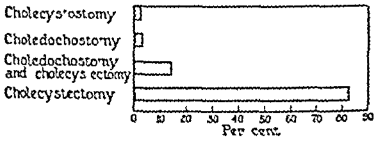


Chart 2.—Type of operation performed in the fifty-three cases in which a secondary operation was required following initial cholecystostomy

of choledocholithiasis since it is in this portion of the biliary system that most gallstones originate. In contrast, if cholecystectomy is performed initially, a potential focus for the formation of calculus is at once eliminated. One could hardly say that inadequate drainage of the common bile duct is responsible for the recurrence when cholecystostomy has been performed, as similar trouble did not develop if the gallbladder was removed at the initial operation when the common bile duct was opened.

Pathology.—The pathologic changes in cases in which recurrence following cholecystostomy definitely occurred varied, but for the most part were characterized by reformation of calculi in the gallbladder; this occurred in about 50 per cent of such cases. In a somewhat smaller group cholecystitis, chronic or acute, existed unassociated with stones. Less frequently choledocholithiasis, pancreatitis and duodenal ulcer were observed. As we have stated, when cholecystectomy was performed reoperation was not required in this series of cases. If a diseased gallbladder is merely drained and not removed, a potent focus of infection is permitted to remain. Chart 1 illustrates the relative frequency of the various types of lesions found in cases in which a secondary operation at the Mayo Clinic followed the original cholecystostomy between 1907 and 1910. The predominant lesion in these cases was cholelithiasis, and cholecystectomy was performed subsequently in most cases (83 per cent) (chart 2). In a smaller group it was necessary to perform choledochostomy, either with or without some operation on the gallbladder.

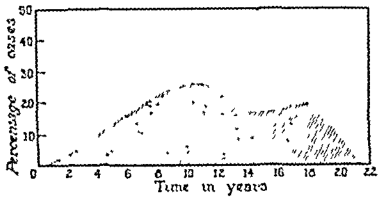


Chart 3.—The interval elapsing between the initial cholecystostomy and the secondary operation in 100 cases in which a recurrence of symptoms necessitated a second operation.

In 7 cases of choledocholithiasis requiring subsequent surgical treatment there was none in which cholecystectomy accompanied the original operation on the common bile duct. Only 4 of the patients required secondary choledochotomy; the remaining 3 were subjected to operation because of cholecystic disease unassociated with a lesion of the ducts. Had the gallbladder been removed primarily in these 7 cases, the possibility of permanent relief would have been greatly enhanced. In some cases, however, primary cholecystectomy performed at the time of choledochostomy is inadvisable. This may be true either because of jaundice in the presence of which one hesitates to remove the gallbladder and leave an oozing hepatic surface, or because of the possibility of utilizing the gallbladder in the future in maintaining free drainage of bile into the intestinal tract.

The interval elapsing between the first and second operations in the cases in which there was a recurrence varied considerably. Although frequently symptoms that later demanded surgical attention appeared within a few years after the initial operation, they were often absent much longer, a decade or more in some cases. Chart 3 illustrates the length of time between the two operations in a group of 100 cases of recurrence. The interim in about half our cases was more than ten years, which emphasizes the importance of a long period of observation if true end-results are to be ascertained. This, of course, does not mean that the recurrence of symptoms was necessarily delayed for so long an interval. At times this is of significance in observing the effects of an operation for choledocholithiasis. If jaundice or pain or chills and fever recur immediately following operation, it is probable that all the stones were not removed, whereas if there is a temporary relief of trouble and then recurrence, stricture of the common bile duct is more likely. Likewise, following cholecystectomy, if jaundice develops soon, one thinks first of an injury to the common bile duct at the time when the gallbladder was removed, whereas if there is a longer period of good health before further symptoms develop, choledocholithiasis becomes more probable.

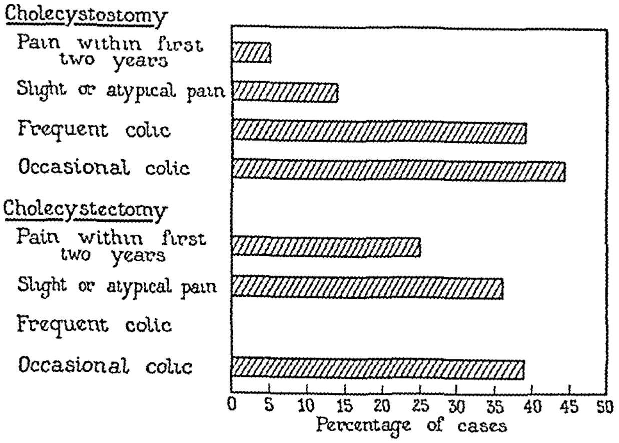


Chart 4.—Type of pain after cholecystostomy and after cholecystectomy. Thirty-nine per cent of the patients had some abdominal pain following cholecystostomy, whereas only 17 per cent experienced discomfort after cholecystectomy.

Postoperative Pain.—A definite number of patients experience pain in the upper part of the abdomen following an operation on the gallbladder, but this is not always indicative of further trouble in the biliary tract. In our cases it was far more common and more often related to the biliary tract following cholecystostomy than following cholecystectomy. Following drainage of the gallbladder, 38.1 per cent of the patients had some pain. If the gallbladder was removed, only 17.3 per cent complained of further pain. Subsequent to surgical drainage of the gallbladder 80 per cent of the patients experiencing pain had what was considered to

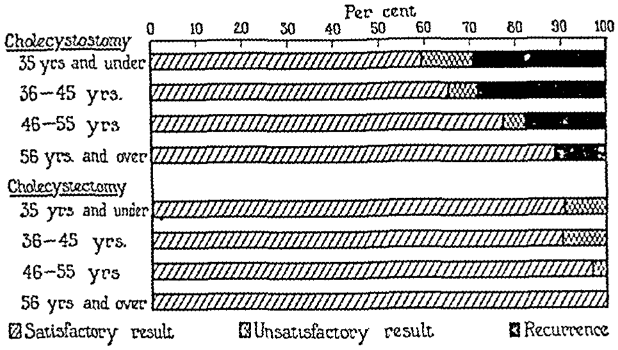


Chart 5.—The relationship between the age of the patient at the time of operation and the result obtained following cholecystostomy and cholecystectomy. A higher percentage of good results is reported by the older patients.

be typical gallbladder colic. A number of them had pain only infrequently, and with proper medical care at home avoided further operative procedures. The remainder had severe colic frequently, and constitutes the group, for the most part, for whom additional operation became necessary. The 20 per cent of patients who had some postoperative pain but not typical colic constituted a group whose pain did not seem directly referable to the biliary tract, except in a few instances in which it occurred soon after operation and then subsided completely. Following cholecystectomy (chart 4) only 17 per cent of the patients had any pain in the upper part of the abdomen, and this was usually not accounted for by recurrent biliary lesions. Only a third of this number had any typical colic. None had frequent severe colic. Pain within the first two years was relatively more common than following cholecystostomy, which might possibly be accounted for by the dilatation of the ducts known to occur following removal of the gallbladder. Comparatively more patients had slight or atypical pain following cholecystectomy. These results are what might be expected, as when the disease focus is completely removed, recurrence is far less common, and the point of origin for initiation of painful sensations is absent, for the most part, whereas following drainage alone there is a constant possibility of further trouble.

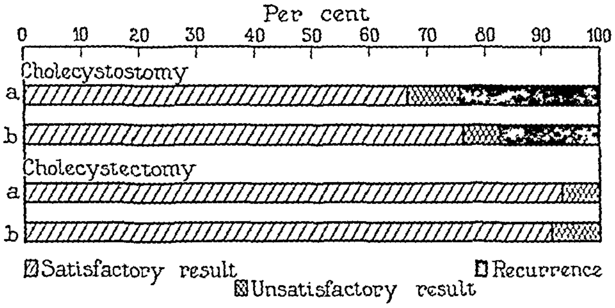


Chart 6.—The relationship between the preoperative symptoms and the end-result following cholecystostomy and cholecystectomy. The line *a* indicates symptomless or dyspepsia; the line *b*, colic, jaundice, chills, fever or some combination.

Factors Influencing Results.—Age seems to be a factor in influencing the results. A higher percentage of older patients experienced good ultimate results than the younger patients (chart 5). This was true following cholecystectomy as well as cholecystostomy. If it is considered that older patients probably have had the disease longer, and consequently advanced secondary changes in the bile ducts and the liver are more likely to have occurred, these observations would appear difficult to explain. There are probably other factors at work, and it does not seem necessary to conclude that the duration of the disease is proportionate with the age of the patient. Whether the appendix was removed at the original operation made no difference in the end-result. From this point of view the appendix cannot be considered a focus for disease of the upper part of the digestive and biliary tracts, although this relationship has been mentioned often. This does not mean that it may not be advisable to remove the appendix in operating on the gallbladder, but it should be removed only with the thought of preventing future local trouble. The preoperative symptoms are not so significant in the final result as one might expect, provided, of course, the original clinical diagnosis is correct. *Patients with colic, jaundice and chills and fever*, or some combination of these complaints, prior to cholecystostomy are likely to obtain more complete symptomatic relief than patients who complain chiefly of dyspepsia. The difference is not great, however, and after cholecystectomy it is even slightly reversed (chart 6).

The presence or absence of stones at the original operation is of some prognostic significance, as patients without stones had less subsequent trouble than those with stones, particularly if cholecystostomy had been performed. If the gallbladder is removed, the results seem to bear practically no relationship to the existence or nonexistence of stones. The general condition of the patient, the extent and nature of the lesion encountered and the type of operation performed are of primary importance in evaluating the prognosis following *operation on the biliary tract*. Other factors may appear to play some part in the ultimate result, but they are mainly of secondary significance.

PRESENT STATE OF HEALTH OR CAUSES OF DEATH

In recent years considerable attention has been given to the gallbladder as a focus of infection. This has been emphasized to such a degree that not infrequently cholecystectomy is now performed with the sole purpose of favorably influencing healing of lesions elsewhere in the body. The gallbladder has been most often condemned as a perpetrator of chronic infectious arthritis. Some observers have noted a supposed relationship between cholecystic disease and cardiovascular disease. In the group of 385 patients who are still living, *more than twenty years following operation on* the biliary tract, hypertension, arthritis, cardiac disease and apoplexy in the order named were found to be the most common causes of ill health at the present time. The frequency of these complaints was far in excess of the general incidence of these maladies, as quoted by actuarial statistics. They were usually more common among patients who had cholecystostomy rather than cholecystectomy. Furthermore, there were more than twice as many (27 per cent as compared with 11 per cent) who now complain of poor health following cholecystostomy than following cholecystectomy (chart 7). The relation between disease of the gallbladder or biliary tract and diseases of the joints or cardiovascular system seems quite definite.

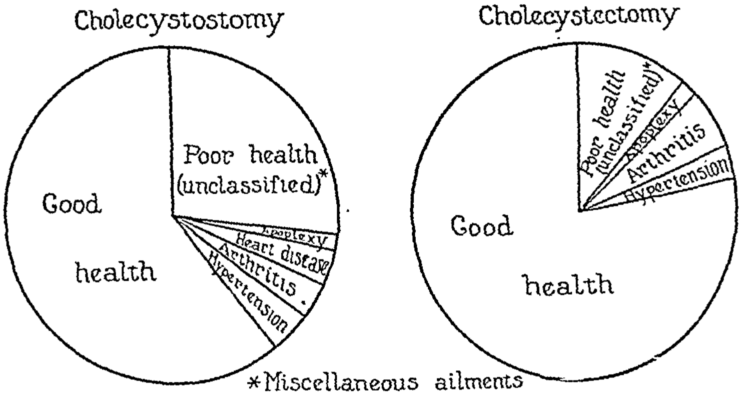


Chart 7.—The present state of health of 385 patients following cholecystostomy and following cholecystectomy. A much larger number of patients are in good health after removal of the gallbladder.

An analysis of the causes of death in 65 cases, in most of which cholecystostomy had been performed previously and the terminal illness was known, confirms the suggested association of biliary and cardiovascular disease (chart 8). Cardiac disease and apoplexy together accounted for more than 45 per cent of the deaths of these patients. Data obtained from a life insurance company give the incidence of these two causes of death as slightly less than 20 per cent among persons of similar ages. Subsequent disease of the biliary tract accounted for almost 5 per cent of the deaths in our cases and angina pectoris for about 3 per cent; the latter was practically identical with actuarial statistics. It might be suggested that if operation had been performed on the biliary tract years ago, disease would *no longer exist in this portion of the body*, and therefore deaths from cardiac and vascular disorders were not attributable to the influence of biliary disease. Lesions had existed in the biliary tract for some time before surgical treatment was employed, however, and unappreciated changes undoubtedly existed for years following operation, even in the absence of the gallbladder.

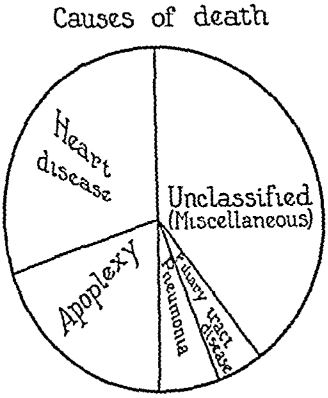


Chart 8.—The cause of death of 65 patients following operations on the biliary tract, all except 7 of which were cholecystostomies

COMMENT

Although cholecystectomy is now generally preferred for primary disease of the gallbladder, certain surgeons still perform cholecystostomy in a considerable number of cases. Our data indicate that a greater percentage of good results followed the former operation. Ordinarily the gallbladder is removed except in the presence of certain definite contraindications. If the patient is an extremely poor surgical risk, as in the presence of jaundice or a small atrophic liver, if it is anticipated that the gallbladder will be needed because of disease of the common bile duct, and occasionally if there is too much infection surrounding the gallbladder, cholecystostomy will often be preferable to cholecystectomy. If cholecystectomy is properly performed the immediate risk is probably no greater than surgical drainage of the organ, except in the cases mentioned.

During 1931, cholecystectomy was performed at the Mayo Clinic in 579 cases for chronic cholecystitis with a mortality of 1.7 per cent. If it is necessary to open the common bile duct, we feel that primary closure is never advisable. A variable period of drainage with a T-tube, ranging from three or four weeks to a year or more, depending on the lesion encountered, has given satisfactory results. When this type of drainage is employed, complete control over the flow of bile is maintained, as it may be drained externally through the long arm of the tube to the outside, or the tube may be clamped off, thus forcing the bile down into the duodenum. If it is considered desirable, fluids may be administered through this tube. A postoperative stricture of the duct does not result from the use of the tube, nor is there any danger of a persistent biliary fistula, provided patency of the common bile duct is established at the time of the operation.

THE CONSERVATIVE TREATMENT OF CHOLECYSTITIS

J. TATE MASON, M.D.
AND
J. M. BLACKFORD, M.D.
SEATTLE

The past decade has given us a wealth of new knowledge concerning the functions of the liver, gallbladder and biliary ducts. Because of this added knowledge of the factors influencing these functions, the immediate hospital mortality of 6 per cent noted in the earlier groups of patients operated on for chronic cholecystitis has been reduced to less than 2 per cent in later groups. We now know that a diseased gallbladder is almost always accompanied by inflammatory changes in the liver and in the biliary ducts, with resulting damage to liver function.

The damaged liver functions best with a high glycogen reserve. Dextrose by mouth passes through the portal circulation and is quickly stored as hepatic glycogen. The excess reaches the general circulation and is stored as muscle glycogen, not readily available for vital functions because it is not so readily released. For this reason apparently, ingested dextrose is actually more efficient than intravenous dextrose in building up vital glycogen reserves. Also intravenous dextrose given rapidly in large doses frequently spills over into the urine; such excess is not stored within the body. Furthermore, patients with livers damaged by obstructive jaundice usually become much dehydrated. If dehydration has developed, it must be relieved before the liver can store glycogen effectively, and even after relief of dehydration the capacity for hepatic glycogen storage returns slowly.

The schematic drawing shows how sodium chloride corrects acidosis or alkalosis if the kidneys are functioning properly. In alkalosis the administration of sodium chloride results in a retention of the chloride and an excretion of the sodium. In acidosis the reverse is true. If ketosis exists, give dextrose with sodium chloride. If the kidneys are not functioning properly, stimulate kidney function by giving 15 per cent dextrose in distilled water before using sodium chloride (Ravdin).

Mann has shown that animals with damaged livers are kept alive much longer on a carbohydrate than on a protein diet. Hence the patient having a damaged liver, or suspected of having such damage, should have a diet rich in carbohydrates and low in proteins. The low protein intake reduces the strain on the liver of having to exercise its detoxifying powers on the split protein products of digestion. We must realize that any change of mechanism, whether due to hepatic cell damage or to chemical activity, which depletes the liver of its glycogen reserve increases the operative risk. Patients with a normal blood chemistry will be found to stand operation with the least shock. These well known facts must be taken into consideration in the surgical and medical management of the disease.

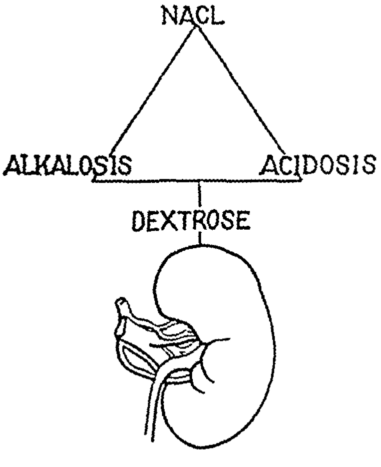
It may seem untimely, with our recent advances in the knowledge of hepatic function, pathology and diagnosis, to advise conservatism in the surgical treatment of cholecystitis. We fear that occasionally surgical relief is advised because of refinements in the

---

From the Mason Clinic.
Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

interpretation of symptoms, together with newer methods of objective diagnosis of gallbladder disease, rather than because of the former clinical reasons for advising operation, i. e., prolonged and distressing clinical symptoms. We have found that in chronic disease of the gallbladder and biliary passages clinical symptoms may be entirely absent. If symptoms are present, they may, in a definite percentage of patients, be relieved by simple medical treatment.

Every surgeon occasionally sees advanced gallbladder disease at operation which was unsuspected clinically. Conversely, he is frequently uncertain whether or not the exposed gallbladder is actually diseased. Frequently small gallstones and gallbladder sand are overlooked in the tense gallbladder seen in the fasting patient at operation. Recently in our clinic we have given, as a routine procedure, a glycerin emulsion of egg yolk and lecithin with glycerin and alcohol by mouth one hour before anesthesia.[1] We have thus greatly facilitated surgical palpation of the gallbladder by having it partially empty, and much to our gratification, in these patients the small intestines are usually collapsed, resembling the condition that is seen following a spinal anesthesia. We believe this procedure is contraindicated in definitely diseased gallbladders, as two of our patients with advanced gallbladder disease had attacks of colic one-half hour after this emulsion was administered.



Schematic drawing showing how sodium chloride corrects acidosis or alkalosis if the kidneys are functioning properly. (After Ravdin.)

Several years ago Blackford and Dwyer reported that gallbladder disease was found twice as frequently as peptic ulcer and gastric cancer combined, and that it was the most common organic cause of dyspepsia. The autopsy observations of Stewart, Crump and Mentzer have shown that cholecystitis is present in as high as 60 per cent of people over 40 years of age, and that gallstones are present in approximately one out of every five. We have found clinically that the condition in only a little over 6 per cent of all patients above 20 years of age admitted to the clinic has been diagnosed as gallbladder disease and for only 20 per cent of those complaining of stomach trouble has this diagnosis been made. Yet these autopsy observations show that many times this percentage of cholecystopathies are found at routine autopsy. We have had occasion to study 600 histories of patients suffering from well defined chronic cholecystitis. There were approximately twice as many women as men in this series. The familiar saying that gallbladder disease usually occurs in women who are fair, fat and 40 has not been true in this series except in part. The average age of the patients when seeking relief was approximately 45 years.

Until very recently we have considered acute pain as a cardinal symptom of disease of the biliary tract. A few years ago we hesitated before arriving at a diagnosis of gallbladder disease without this as the chief symptom. In this series, localized pain or soreness of varying degrees was a common complaint, but only 18.5 per cent of the patients gave a history simulating that of one or more attacks of gallstone colic.

Approximately three fourths of the patients of this series sought relief on account of chronic gastric disturbances, and in over half of these the gastric symptoms had persisted for more than ten years. These disturbances consisted first of food selection, which was the most frequent complaint. The foods most commonly avoided were those that were rich and highly seasoned, fried meats, cooked cabbage and raw apples. The next most annoying complaint was of gas and a feeling of fulness in the epigastrium after meals.

The gastric analysis was recorded in 402 cases. In more than half of these patients it was found that free hydrochloric acid was absent from the gastric contents or was definitely below normal. In only 6.7 per cent was free hydrochloric acid above normal. We hesitate in the presence of a hyperacidity to make a diagnosis of cholecystitis on a patient presenting a history of chronic indigestion.

SURGICAL FOLLOW-UP STUDY

This group of patients is composed of those who had their gallbladders removed from five to fifteen years ago. They were suffering from well defined chronic cholecystitits, without complications. Thus those patients with acute cholecystitis, empyema, jaundice or carcinoma have not been included. Regarding the relief of symptoms of pain by cholecystectomy, 83 per cent considered that the operation had relieved 75 per cent or more of their previous complaint. Fifty-six per cent stated that they had been completely relieved of all their old symptoms. Thirteen per cent continued to have symptoms as before, and 4 per cent had no relief.

Dyspepsia brings more patients with disease of the gallbladder to the physician than any other complaint. Consequently the degree of relief of this condition is a fair index as to the benefit derived from removal of the gallbladder. In answer to the question regarding this condition, 73 per cent stated that their digestive disturbances were greatly relieved, 18 per cent partially improved, 7 per cent unchanged and 2 per cent worse.

Gas and belching have been stated to be the most common and most annoying complaint with most people with disease of the gallbladder. After operation these symptoms were either absent (37 per cent) or markedly relieved (46 per cent) in 83 per cent; no change was noted in 12 per cent, and 4 per cent stated that they considered themselves worse following the operation.

The continued absence of free hydrochloric acid in the gastric content is the cause of the failure of some patients to receive much relief of their digestive disturbances following cholecystectomy.

Food selection is another frequent complaint, as previously noted. In answer to the question as to whether or not the removal of the gallbladder permitted these patients to eat without distress certain foods that they could not eat before, 68 per cent replied in the affirmative. Many patients were very emphatic in their statements relative to this question, affirming that they could now enjoy many foods that would previously have caused them great distress. Thirty-two per cent stated that they noticed no particular difference following the operation, and only 2 per cent felt that they were worse in regard to food selection than they had been previous to the removal of the gallbladder.

---

[1] This emulsion was suggested by Dr. Lester Levyn of Buffalo as an aid in roentgenology in his article, "An Effective Gallbladder Stimulant to Supplant the Fat Meal," Am. J. Roentgenol. 26: 904 (Dec.) 1931.

Colic, which is considered a common symptom of patients with disease of the biliary tract, occurred in 18 per cent of the patients before surgical and medical treatment had been instituted. We find that 17 per cent still reported colic after surgical treatment, but that most of these patients had only one or two attacks and these in the first year following their operation. Five years ago we were not draining the common and hepatic ducts nor investigating for stones as often as we are today. This may be the reason for this rather high percentage of patients having colic following their operation. The exact cause of gallbladder and duct colic not due to calculi has not yet been definitely established, as many of these gallbladders and ducts did not contain stones, only 45 per cent of the total series being found at operation to have stones.

MEDICAL FOLLOW-UP STUDY

The results in the patients who received surgical relief were most satisfactory. Yet we were impressed with the fact that there was a considerable series of patients with clinical cholecystitis who had been advised medical treatment or who had refused surgical treatment and hence were receiving medical treatment of some kind. Two hundred patients were selected for this study who had elected or had been advised medical treatment. We have been surprised at the infrequency with which delay has resulted in emergency operation or disaster. These 200 cases represent a 60 per cent successful follow-up of probable, typical and proved cases of gallbladder disease available for study after an average of nine and a half years. The average length of history was nine years, so the total average duration of history from the beginning of symptoms to the present is eighteen and one-half years. All available methods of follow-up study have been used; we have found it vastly more difficult to follow up medical than surgical cases. Diagnosis is assumed to be approximately 90 per cent correct, for these cases were studied by a group of careful clinicians, all usual methods of studying gastro-intestinal complaints being used, and cases with questionable diagnosis have been discarded. Most of these patients were studied before cholecystograms were available, but late in the series this method was used. Immediate operation was advised but refused in one third of these cases. A trial of medical treatment was advised in two-thirds, but it was always stated to the patient that operation was advisable later if relief was not obtained promptly by medical treatment.

Medical Treatment.—The patient with dyspepsia due to gallbladder disease has usually found, as mentioned previously, that certain rich and tasty foods disagree, that overloading the stomach brings on trouble and that high seasoning, fried foods and alcohol are often distressing. Naturally he tries to avoid the things that he knows make trouble. By medical management we mean the use of a diet list with general instructions and elimination of foods that usually disagree with such patients. We have advised periods of the use of morning saline, usually sodium phosphate; biliary salts before meals, lately combined with oleic acid; and relief of constipation. Alkalis have occasionally been used. Infective foci have usually been relieved, and we have laid emphasis on reasonable physical exercise. Medical biliary drainage (Lyons-Meltzer) has not been used for treatment.

Such a regimen has been instituted in all cases, but has been followed only as the patients cared to follow it. Treatment has not been supervised or followed closely.

The results of the medical study can be briefly stated. One third of these patients, under simple medical treatment, became symptom-free. One-third came to operation from three to five years after the diagnosis was made. One-third, because of the continuation of their symptoms, should have come to operation.

CONCLUSIONS

This study has confirmed our impression that in well defined chronic cholecystitis not relieved by medical treatment the operative results are most satisfactory. However, contrary to usual surgical advice, chronic cholecystitis may, in approximately one third of the patients, be successfully treated along medical lines. The risk of developing a surgical emergency or calamity while under medical treatment is not greater than is the risk in the best elective gallbladder surgery. Patients who have allowed their gallbladder symptoms to go on for a number of years until their gastric acids have become low or absent, with definite and permanent pathologic process of the liver and biliary ducts, cannot expect as complete relief from cholecystectomy as if they had accepted immediate operation. Hence we believe emphatically that when medical management fails to relieve promptly then operation should be urged on the patient. We wish to emphasize the fact that patients with acute cholecystitis, empyema, jaundice or carcinoma have not been included in this study.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JUDD AND PRIESTLEY AND DRS. MASON AND BLACKFORD

DR. R. L. PAYNE, Norfolk, Va.: I took the opportunity to go over my gallbladder cases through my follow-up methods, and some of the facts that I deduced have been worthy of comparison with those presented by the authors. I was amazed to find that the results after cholecystostomy in the early years were much worse than those reported by Drs. Judd and Priestley. Cases in which a second operation was performed were a great deal more frequent. Drs. Mason and Blackford presented a most interesting series of cases in which one third of the patients were relieved by medical treatment and two thirds by surgery. I have no medical series to compare with these, but I have a series of definitely proved cases of cholecystitis, proved at operation when cholecystostomy was done, that would indicate that 76 per cent of these cholecystostomy patients required second operations. In one series of fifty cases done between 1907 and 1913, by an accurately followed record, thirty-eight patients were reoperated on for trouble in the gallbladder or common ducts. In the early years, cholecystostomy was done almost as a routine and removal of the gallbladder was rarely done. In later years, in 545 cholecystectomies, 80 per cent of the patients have received satisfactory results. I was astounded to find that only 8 per cent of this series showed any common duct problems at the time of primary operation, and that, in 1 per cent of the 545 cholecystectomies, common duct complications developed after the gallbladder had been removed. In the last two years I have come to feel that if the operator does not believe that cholecystectomy can safely be performed in acute severe fulminating cholecystitis it would be to the best interests of the patient if the gallbladder was split open and destroyed by a strong chemical or the actual cautery, feeling that in the final analysis this would prevent a second operation. However, I have observed in many of these acute cases that in nearly every instance the process is well walled off from the rest of the abdomen, and I feel that if the enucleation of the gallbladder is carried out carefully and within the walled-off area, cholecystectomy at that time is the best procedure, even though one might have to put a clamp on the cystic pedicle and be satisfied to leave it there and to pack the bleeding, oozing liver crater in order to finish and get out in a hurry. When one realizes that with all bad cholecystitis there is a complicating hepatitis, and remembers that we are told by Dr. Judd and others that this hepatitis has a definite tendency to repair after removal of the gallbladder, we must conclude, with Dr. Royster, that cholecystectomy is synonymous with surgical vision, for it is doing one operation to prevent another.

Dr. Frank H. Lahey, Boston: I rise to make two particular points in connection with this paper: (1) to adduce some evidence to the effect that earlier operation will influence mortality and end-results in gallstones; (2) that common duct stones are much more frequent than they have heretofore been thought to be. Up to 1926 my associates and I had operated in 619 gallbladder cases; we had opened the common duct and searched for stones in 12 per cent of these cases. This netted a discovery of common duct stones of 8 per cent. That number of cases in 1931 has been brought up to 1,306. Last year we opened the common duct and searched for common duct stones in 41 per cent of the cases. That netted a discovery of common duct stones of 19 per cent. Previous to 1926 we undoubtedly left a stone in the common duct in approximately one in every ten cases in which operation was performed. The mortality in the cases up to 1926 was 5.4 per cent. The mortality in the group from 1926 to 1931 with an increased exploration of the common duct is 2.2 per cent. It does not increase the mortality in cholecystectomy, in gallstone operations, to open and explore the common duct; it decreases it. Of all the patients who had common duct stone operations, the mortality was 13.3 per cent. Therefore, two conclusions must be drawn. One is that long-standing gallstones increase the number of cases of common duct stone, and that when one waits to operate on these patients until they have common duct stones the mortality will be high. Our medical friends must overcome the complacency with which they permit patients to go through repeated attacks of gallstone colic. They must learn that if these patients are operated on while the stones are still in the gallbladder the mortality will be low and the end-results will be much improved. Thirty-nine per cent of all the patients in whom we found common duct stones did not have jaundice, and we must learn as surgeons that we do not want to wait until they have jaundice to make a diagnosis of common duct stones; we must learn that in the entire absence of signs of common duct stones, on only secondary indications, such as dilated ducts and thickened and contracted gallbladder, we must open common ducts and not depend on palpation alone. Common duct stones are overlooked at the ampulla of Vater, and frequently they cannot be felt within the thickened head of the pancreas; they must be searched for. If one will open the common duct and search for them in all suspicious cases, one will more than double the incidence of discovery of common duct stones, and when one does discover them and removes them one will not increase the operative mortality, one will lower it and improve the end-result. But the important point I wish to make is that we must urge our medical friends not to carry these patients through repeated attacks of gallstone colic with morphine and other sedatives. They must learn that it is delay on their part or the patient's part which makes the ultimate high mortality and bad results.

Dr. Moses Behrend, Philadelphia: There are three points in the paper of Drs. Judd and Priestley to which I should like to refer. The first is that cholecystectomy is a better operation than cholecystostomy. This has been known for years, but it is wise to call attention to the subject again. There has been less recurrence of symptoms as a result of the operation of cholecystectomy than as a result of cholecystostomy. A important point was brought out in the paper of Drs. Judd and Priestley with respect to the relation of jaundice to cholecystectomy. In all clinics the surgeons develop certain axioms, and one of our axioms is that the gallbladder should never be removed in the presence of jaundice. The changes that occur in the blood in jaundice are well known, and that is one of our reasons for not removing the gallbladder. It was rather surprising to hear Drs. Judd and Priestley say that they had less trouble in those cases in which there were no stones. My experience has been to the contrary; more trouble results following operation in cases without stones than in those in which stones are present. I thought that was the experience of the majority of surgeons. When there are no stones present, these patients develop a certain number of nervous symptoms which somehow or other are not eliminated as the result of operation. An important point touched on was the relation of the gallbladder to heart conditions. In a recent paper before the seminar of the Philadelphia County Medical Society I noted that my experience corresponds exactly with that of Drs. Judd and Priestley. There is no question that there is a profound relationship between infection of the gallbladder and cardiac disease. More than ten years ago Dr. Joseph Wolffe and I did some work on the relation of cardiac disease to gallbladder infection, and we found that after the gallbladder is removed the heart recovers in a certain percentage of cases, whereas in others it remains permanently damaged. I must take exception to the statement of one of the discussers concerning acute gallbladder disease and the walled-off area. I think that one should never remove the gallbladder, even if it is in this walled-off area. If one has made a mistake in diagnosis and operates on an acute gallbladder under a diagnosis of acute appendicitis, the gallbladder should always be drained and not removed. The removal of the gallbladder in acute infections is entirely too hazardous a thing to attempt, on account of the infection that will permeate the entire system.

Dr. Willard Bartlett, Jr., St. Louis: I have a little further evidence to add to the remarks made by Dr. Lahey. The changes in the liver and in the pancreas have been well known, of course, in chronic biliary infection. Drs. Judd and Priestley have emphasized the appearance of cardiovascular complications. Little attention has been paid, however, to complications in the kidney in conjunction with long-standing gallbladder disease. I am about to report a series of five cases of anuria occurring with cholecystitis. This has been associated in each case so far with jaundice, and whether it is the result of long-standing jaundice or of long-standing infection I am uncertain at present. These cases have occurred in persons in the fifties and over, without exception. It is impossible to say that there has not been not a complicating but simply an additional chronic nephritis in these cases. In two of them, however, I have known that two weeks previous to the onset of the anuria the urine was microscopically and chemically normal, the blood nonprotein nitrogen was normal, and the excretion of phenolsulphonphthalein was above 75 per cent. One of the five patients recovered. All of them, under treatment with 50 per cent solution of dextrose given intravenously, and salyrgan (used very cautiously) showed a temporary improvement. Since observing these cases I have tested all patients with chronic cholecystitis for kidney function, both by phenolsulphonphthalein excretion and by concentration tests. I have definitely observed, and will report later, that in certain patients who are jaundiced or have recently been jaundiced, there is a constant inability to excrete phenolsulphonphthalein satisfactorily and to concentrate the urine. In such cases I have not done a cholecystectomy but have preferred to do cholecystostomy, maintaining the drainage of the biliary tract by the Pezzer catheter (mushroom catheter) in the gallbladder until such period as I felt cholecystectomy could be safely undertaken. That has ordinarily been from three to six months. I have had no difficulties with loss of bile. There are a good many ways of managing that satisfactorily. When these patients who have had preliminary cholecystostomy have returned for cholecystectomy, they have shown a definite improvement in their ability to concentrate their urine and to excrete phenolsulphonphthalein. I present this as an additional reason for not allowing patients to go past 50 years of age, the deadline, more or less, for elective surgery, carrying their chronic abdominal infection into that age group.

Dr. I. S. Ravdin, Philadelphia: These papers and discussions have shown that additional information is required regarding the chemical changes that occur in the bile in gallbladder disease. During the past year my associates and I have been studying the chemical changes that occur in the bile in the human gallbladder. It is only from data of this type that one can gain additional information on the pathologic changes that occur in gallbladder bile after infection of the biliary system. In the first place, it is important to obtain information that will permit one to draw deductions from physiologic observations on the biliary tract of the dog in comparison with that of the human being. Studies that we have made convince us that in most particulars the concentration of the chemical constituents of the bile in the gallbladder of the human being are the same as those we have described for the dog. The normal bile that we have studied has come from patients who did not have gallbladder disease. In the patients with chronic cholecystitis without stones but in whom gallbladder visualization was obtained by roentgen rays, there is a marked decrease in the bile salt concentration in the bile found in the gallbladder. In the group with chronic cholecystitis with stones but in which gallbladder visualization was also obtained, one finds a lower concentration of bile salts than in the second group, a slightly lower concentration of calcium and an increase in the chloride concentration. In the last group, the cases of chronic cholecystitis with stone in which the gallbladder was not visualized, calcium is not concentrated at all, the chloride concentration is extremely high, and in the majority of instances there is no bile salt present. This shows a progressive change in the chemical constituents of the gallbladder bile with progressive alterations in the pathologic lesion. In a few patients having common duct obstruction from stone, the bile was examined some days after the introduction of a T-tube in the common duct. In every instance one finds that after an interval of frequently three weeks, when the bile looks normal, there is still no bile salt present in the bile coming from the liver as determined by the Gregory-Pascoe reaction, so that the liver as the result of the obstruction is damaged for a longer period than we have previously been led to suspect. This emphasizes a point which Drs. Judd and Priestley brought out, that as yet we do not know the length of time during which the liver remains damaged after common duct obstruction.

DR. J. TATE MASON, Seattle: I should like to call attention to the fact that in the paper of Drs. Judd and Priestley and in much of the discussion, mention has been made several times of complications affecting the common duct following cholecystectomy. The anastomosis between the common duct and the duodenum has been difficult. Anastomosis is not difficult except in a slight degree when an opening is made between the gallbladder and the stomach or from the gallbladder to the duodenum, but I now believe that, when these artificial openings remain patent, in the course of a short time infection is likely to ascend from the viscus through the biliary passages and into the liver, resulting in a chronic hepatitis, which, in turn, is followed by multiple abscesses of the liver. I do not believe that this ascending infection occurs when the anastomosis is made between the common duct and the duodenum and that in patients suffering from stricture of the common duct or benign or malignant tumors of the ampulla of Vater a choledochoduodenostomy is the most satisfactory operation that can be performed. I will present a simple way of anastomosing the common duct to the duodenum: First the common duct is exposed just above the upper border of the duodenum. Two or three, or occasionally four, sutures are then placed from the duodenum to the duct. These form the posterior line of suture of the anastomosis. Just in front and close to the suture line, a small opening is made in the duct and also one in the duodenum. Through these two openings, one above into the common duct and one below into the duodenum, a T-tube is placed which is of approximately the same size as that of the common duct. The lower arm of the tube is in the duodenum and the upper in the common duct, while the stem of the tube of course hangs outside the abdominal wound. The opening in the common duct and duodenum is then sutured up around the stem as closely and as neatly as can be done, with interrupted sutures. During the time that these sutures are being placed, by gently tugging on the stem the surgeon can bring the whole field of operation well up within the wound. When the suturing is completed, the stem of the T-tube is cut off at the point of its junction with the two arms, or as near this point as possible. The small opening left by the stem is sutured over with two or three interrupted sutures, and then to prevent the tube that remains from hanging in the anastomosis for too long a period, the tube is gently pushed down into the duodenum until only about a third of its length is hanging in the anastomosis. This tube passes through the intestinal tract in from five to six days. This method of anastomosis requires only ten or fifteen minutes and hence is very simple, in contrast with what has sometimes been found to be a very difficult procedure.

THE MANAGEMENT OF HEMORRHAGIC PROBLEMS IN INFANCY AND CHILDHOOD

I. NEWTON KUGELMASS, M.D.
NEW YORK

Hemorrhagic disturbances abound in clinical confusion. The loss of "life" blood alarms parents, the appearance of petechiae perplexes physicians, and a hemorrhagic history preoperatively petrifies surgeons. The hemorrhagic state is ever a problem. Manifest bleeding is precipitated and yields more readily to immediate control than to subsequent prevention, but latent hemorrhage is elusive, defying detection even more than a diagnostic differentiation. Children reveal hemorrhagic symptomatology that is too heterogeneous to be typical, too recurrent to withstand diagnostic delay, too dependent on systemic disease to be primarily hemorrhagic.[1]

The hemorrhagic status of a patient is best evaluated clinically in terms of degree of function of the vascular endothelium and its blood content. Although chemical changes are present in both in most hemorrhagic disturbances, the one or the other necessarily dominates the picture. It is only in truly hereditary hemorrhagic disease that absolute deficiency in the vascular system or in one of the clotting components is characteristically unitary in its pathogenesis. But the number and variety of acquired hemorrhagic diseases are legion. They are necessarily characterized by varying degrees of functional change in the blood channels as well as in the blood-clotting components expressed by the equilibrium:

$$\text{Reticulo-Endothelial System} \rightleftarrows \text{Blood} \rightleftarrows \text{Vascular System.}$$

Typical hemorrhagic problems are therefore limited, while the majority reveal varied transitional changes in vascular phenomena and clotting components. One of these factors constitutes the controlling factor. Its determination is indispensable among the criteria essential for final diagnosis. Clinical symptoms alone never suffice for arriving at the exact nature of the underlying condition productive of the hemorrhagic disease. Besides the family history, the past hemorrhagic status, the constitutional susceptibilities, the nutritional regimen, the physical examination, the current therapy and the blood picture, several simple tests are made for the determinations of the blood-clotting and vascular functions.

DIAGNOSIS AND TREATMENT OF HEMORRHAGIC DISEASES: DISTURBANCE IN THE BLOOD CLOTTING FUNCTION

The hematic group of bleeding problems constitutes the essential hemorrhagic [illegible] hemorrhagic disease of the new-born, hered[illegible]topenic purpura and the diseases of the bone marrow, spleen and liver. Each is characterized by a functional deficiency in one of the clotting components as the controlling factor in the pathogenesis of the hemorrhage. Each clotting factor congenitally deficient is indicative of a specific hereditary hemorrhagic disease. Each disease is amenable to control to the extent that the deficient factor is replaced or regenerated. Bleeding

---

Read before the Section on Pediatrics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Kugelmass, I. N.: Arch. internat. de physiol. 21: 139, 1923.

in these cases tends to be prolonged and continuous once the vascular integrity is disturbed. But until the provoking condition precipitates bleeding many of these and associated conditions constitute potential hemorrhagic disease determined not by symptomatology, but by accidental study of blood-clotting function.

Table 1.—*Hemorrhagic Diseases in Infancy and Childhood Resulting Primarily from Blood-Clotting Dysfunction*

- Acquired
  - I. Potential hemorrhagic disturbances
  - II. Hemorrhagic disease of the new-born
  - III. Thrombocytopenic purpura
    - (a) Essential
    - (b) Symptomatic
      - 1. Bone marrow disease
        - Agranulocytosis
        - Aplastic anemia
        - Aleukia hemorrhagica
        - Erythroblastic anemia
        - Niemann-Pick
        - Leukemia
      - 2. Splenic disease
        - Banti's
        - Gaucher's
        - Hemolytic icterus
      - 3. Infectious diseases
        - Endocarditis
        - Sepsis
        - Syphilis
        - Tuberculosis
        - Typhoid
        - Hemorrhagic measles
        - Hemorrhagic scarlet fever
        - Hemorrhagic smallpox
      - 4. Drugs
        - Mercury, bismuth, and arsenic compound and potassium iodide
        - Arsphenamine
        - Quinine
        - Phenolphthalein
  - IV. Hemorrhagic diseases of the liver
    - 1. Congenital obstruction of bile ducts
    - 2. Liver infections, tuberculosis
    - 3. Cirrhosis
    - 4. Poisoning
      - Chloroform
      - Phosphorus
- Familial
  - I. Hereditary hemophilia
  - II. Hereditary thrombasthenic purpura
  - III. Congenital thrombocytopenia
  - IV. Congenital fibropenia
  - V. Atypical hemorrhagic diseases

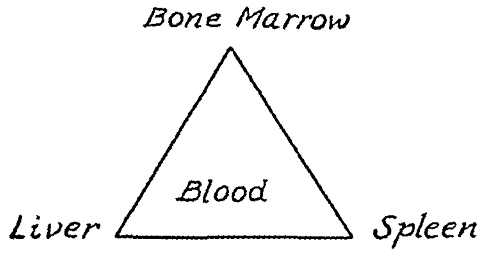
Hemorrhagic Diseases in Infancy and Childhood Resulting Primarily from Vascular Dysfunction

- Acquired
  - I. Nutritional
    - Scurvy
    - Marasmus
    - Infantilism (Herter's)
  - II. Allergic
    - Purpura simplex
    - Erythema multiforme
    - Schonlein-Henoch syndromes
    - Purpura fulminans
    - Acute infectious diseases
  - III. Infectious
    - Subacute bacterial endocarditis
    - Acute infectious diseases
    - Sepsis
    - Syphilis
    - Tuberculosis
    - Uremia
  - IV. Toxic
    - Drugs
    - Venom
- Familial
  - I. Hereditary telangiectasis
  - II. Atypical hemorrhagic diseases

Potential Hemorrhagic Disturbances.—Bleeding is not an infrequent symptom in apparently well and active children. To be sure, trauma, infection, drugs and even insect bites induce all forms of benign hemorrhagic manifestations apart from hemorrhagic disease. But there is a group of well children in whom nosebleeds, black and blue spots and other hemorrhagic manifestations are either indicative of potential hemorrhagic disease or, more generally, of diminished blood-clotting function, since the vascular endothelium suffers no disturbance in nutrition in severest anemia or hydremia. The results of physical examination may be negative and clotting time prolonged or normal but the clotting components diminished in prothrombin, fibrinogen or platelets. We[5] have observed in the last five years that these clotting components may be altered by dietary regimen.

Protein and fat tend to increase the concentration of the blood-clotting components, while carbohydrates and minerals tend to decrease it. We[5] have therefore devised a "clotting diet" high in protein and fat, acid forming and low in vegetables and carbohydrates and a "bleeding diet" high in vegetables, carbohydrates and water, base forming and, of course, minimal in protein and fat. The effect of these diets on the clotting function has been demonstrated in animals to shift in the direction of increased bleeding or clotting after a week of such a regimen. Similar results are attained in children whose tendency toward bleeding is discovered accidentally or preoperatively. Our surgical staff has been particularly concerned about the application of these dietaries preliminary to operations to prevent postoperative bleeding in some and thrombosis in others, as predetermined by the index of blood-clotting function.

Hemorrhagic Disease of the New-Born.—Melena is a self-limited symptom complex distinct from other hemorrhagic disturbances in the new-born. It is a transient though severe reaction of the new-born to chemical injury of the reticulo-endothelial system. Its manifestation of bleeding from the mucous membranes may simulate veritable diseases—syphilis and sepsis during the first days of life and purpura, hemoglobinuria and visceral anomalies during the first weeks of life, but the mechanism of melena is less deep-seated; it is self-compensating and even preventable. Potential hemorrhagic disease may be recognized on the first day of life by the prolonged clotting time.[6] This reveals injury in the formation of the blood-clotting substances, prothrombin or fibrinogen. Their diminution is brought about by anesthetic drugs administered during labor, by postnatal hemolyis of red cells as well as by prenatal deprivation of protein and fat on the part of the mother.



The hemorrhagic triad.

Though a multiplicity of factors may be operative in the development of melena neonatorum, the daily injection of 30 cc. of human blood intravenously from the first day of life arrests oozing within twenty-four hours. I have observed in the course of my studies on the nutrition of the new-born that the oral administration of gelatin from birth is preventive of hemorrhagic disease. The feeding of 3 per cent gelatin solution at two hour intervals has reduced the average clotting time of new-born infants from nine minutes to two minutes in about 200 babies, with an equal number of controls, and produced a corresponding rise in clotting function. I have not observed a single case of hemorrhagic disease of the new-born throughout the year during the administration of this modified

---

and Samuel, E. L.: Dietary Protein and Blood- J Dis. Child. **41**: 48 (Jan.) 1931.

Gasteyer, T. H., and Wyatt, L.: Substances of Blood of the New-Born, Am. J. Dis. Child.

solution, which was primarily devised for the purpose of preventing loss of weight in the new-born child.

Prenatal prevention of potential hemorrhagic disease in the new-born is another approach. I[7] have been privileged to see recurrent melena neonatorum in babies born of the same mother, T. N., under the obstetric care of Dr. Tritsch at the Fifth Avenue Hospital. The first four pregnancies terminated in death from hemorrhagic disease, as substantiated by postmortem examination. It was during the fifth pregnancy that a prenatal attempt was made to prevent the anticipated severe melena. The mother's blood showed a concentration of clotting components characteristic of hemorrhagic disease in the new-born. She was given dietary very high in protein, in contrast with her usual low intake of protein, limited during previous pregnancies because of hypertension. The blood-clotting picture became adequate, and a normal infant was delivered at term. The baby has been under my observation for four years and has been perfectly well since birth. Encouraged by her favorable fifth pregnancy, she proceeded to a sixth, but refused to be under rigid nutritional supervision, and was delivered of an infant with melena, proved by postmortem examination in the same institution.

Table 2.—*Increase in Blood Clotting Function on a High Protein Dietary in Potential Hemorrhagic Disturbances* *

Case	Prothrombin	Fibrinogen	Antithrombin	Platelets	Lysis	Index
A. J.	0.60	0.36	1.4	210,000	33	0.10
	0.80	0.64	1.0	350,000	40	0.50
B. S.	0.60	0.37	2.2	260,000	19	0.10
	1.00	0.64	1.0	325,000	38	0.60
A. S.	0.01	0.56	10.5	260,000	10	0.01
	0.90	0.75	1.0	275,000	34	0.70
H. R.	0.60	0.60	1.5	150,000	37	0.10
	0.90	0.60	1.0	200,000	37	0.40
J. T.	0.80	0.32	1.1	350,000	30	0.20
	1.00	0.37	1.0	350,000	30	0.30
M. M.	0.60	0.30	1.2	150,000	27	0.20
	0.80	0.50	1.0	230,000	30	0.40
A. H.	0.60	0.60	1.5	175,000	37	0.20
	0.90	0.60	1.0	190,000	31	0.50
M. O.	0.80	0.28	1.0	340,000	50	0.20
	0.80	0.60	1.0	345,000	48	0.40
F. M.	0.60	0.30	1.2	150,000	27	0.20
	0.80	0.50	1.0	230,000	30	0.50

* There was an interval of one month between determinations.

Essential Thrombocytopenic Purpura.—This is a benign disease of the reticulo-endothelial system. It is primary in the spleen, where platelets are destroyed, and secondary in the bone marrow, where lesions interfere with normal platelet formation. The marked reduction in the number of blood platelets and their alteration in size and structure bear no definite relationship to the severity of the bleeding, the bleeding time, the impaired clot retraction and the diminished capillary resistance. This blood picture appearing suddenly in an apparently well child, without cause for the hemorrhagic state, and the posthemorrhagic anemia and leukocytosis determine the diagnosis. These criteria characterize the disease in all grades of severity, in the acute fulminating type, in the transient attack and in the chronic latent course, whether the bleeding is limited to a single source or is widespread.

Effective control of bleeding in acute cases or prevention of bleeding in the chronic problems depends on procedures for increasing the concentration of blood platelets. All other methods are wasteful and without effect. In emergencies, the intramuscular injection of 50 cc. of whole blood, requiring no typing, increases the platelets and arrests hemorrhage. But large transfusions from a suitable donor not only supply platelets but actually stimulate platelet generation. They must be repeated every fourth day, paralleling the average life of infused platelets. Feeding high in fat and rich in vitamin D and ultraviolet irradiation, particularly after anointing the body with wool fat, produce transient rises in platelets and help to tide over an acute problem.

Persistent bleeding in 70 per cent of chronic cases is permanently relieved by splenectomy. It is unfavorable in acute conditions in which the mortality is 80 per cent in comparison with 8 per cent in the chronic cases. The operation must be properly timed for obtaining favorable postoperative prognosis. Preliminary roentgen irradiation of the spleen produces a leukopenia which is an unfavorable prognostic omen. Splenic enlargement is not a necessary criterion for operation, although the removal of massive spleens has saved lives from being lost through uncontrollable hemorrhage. Following splenectomy the platelets may rise to a million and then return to normal levels in patients in whom platelet destruction has been the mechanism. But in those in whom platelet formation has been retarded, the postoperative rise in platelets is less marked, and the subsequent level attained is necessarily low.

Symptomatic Thrombocytopenic Purpura.—Purpura is a hemorrhagic symptom widespread among many diseases. Besides the essential type, it may be a manifestation of clinical syndromes associated with diminution in blood platelets in diseases of the bone marrow, spleen and reticulo-endothelial system as a result of infection or intoxication, or it may be a symptomatic expression of mere capillary injury in the course of systemic infection, chemical intoxication, allergic offense and a variety of other capillary-toxic conditions. In the one group of conditions, the blood picture is a revelation of injury to the blood cells, whereas in the other group the blood picture is usually normal. Purpura therefore becomes primarily a problem for careful clinical differentiation between the varied types of diseases characterized by either clotting or vascular dysfunction. Diagnostic differentiation makes all the difference between benign and malignant diseases, effective and fancied therapy, favorable and fatal prognosis.

Table 3.—*Hemorrhagic Disease of the New-Born*

Name	Day of Onset	Duration of Bleeding, Days	Clotting Time	Bleeding Time	Clot Retraction	Tourniquet Test	Prothrombin	Fibrinogen	Antithrombin	Platelets	Lysis	Index
C. W.	Third	1	5	2	+	—	1.0	0.2	1.25	300,000	43	0.3
D. B.	Third	2	10	4	+	—	0.6	0.2	1.5	165,000	30	0.05
A. S.	First	0	20	2	+	—	0.3	0.5	2.0			
W. H.	Third	3	31	2	+	—	0.3	0.5	2.0	165,000	40	0.05
C. M.	First	1	40	3	+	—	0.2	0.4	3.0			
J. B.	Second	3	45	3	+	—	0.2	0.5	4.3	280,000	40	0.04
H. B.	First	0	50	2	+	—	0.1	0.6	2.5	175,000	35	0.01
E. D.	First	0	60	3	+	—	0.4	0.8	2.5	220,000	45	0.1
B. L.	Second	5	90	15	+	—	0.3	1.1	5.0	200,000	35	0.05
A. G.	Second	2	120	5	+	—	0.1	0.4	5.0	180,000	40	0.01

Treatment of symptomatic thrombocytopenic purpura necessarily depends on the primary diseases. Splenectomy is indicated in Gaucher's disease and in constitutional hemolytic anemia, because the purpura mechanism is similar to that of essential thrombocytopenic purpura. But the great variety of other conditions is the result of destruction of blood-forming organs by intoxication, infection or infiltration resulting in malignan [illegible] Some infectious diseases injure [illegible]akaryocyte mechanism. Primary blood diseases in addition affect the formation of other blood cells. Certain drugs likewise reduce myeloid elements of the blood. These myelotoxic conditions are malignant, resisting all forms of therapy. But the associated vascular injury and infiltration may be influenced to arrest bleeding by diminishing capillary permeability. The slow intravenous injection of 10 per cent calcium gluconate or chloride daily in 20 cc. amounts, supplemented by oral administration of calcium salts, is a transient therapeutic measure alternated with blood transfusions. But splenectomy is contraindicated.

---

[7] Kugelmass, I. N., and Tritsch, J. E.: Prenatal Prevention of Potential Hemorrhagic Disease of New-Born, J. A. M. A. 92: 531 (Feb. 16) 1929.

Purpuric problems are rarely patterned according to the textbook. Only purpuric children can illustrate how strikingly borderline diagnostic criteria may be.

Characteristic thrombocytopenic purpura with remissions developed in Dr. Marton's 8 year old boy, until splenectomy became imminent. When he came under my observation I found that he had been quantitatively deprived of protein and fat because of chronic eczema. As a last resort, a dietary high in protein and fat brought the platelets from 20,000 to 400,000, with the disappearance of purpura in 1927. Obviously, I am not advocating dietary specificity in thrombocytopenic purpura.

S. T. was admitted because of thrombocytopenic purpura with severe bleeding from the gums for five months, but without other hemorrhagic symptoms. Examination of the blood showed: hemoglobin, 28 per cent; red blood cells, 1,200,000, and white blood cells and differential count, normal. The platelets numbered 40,000, and the tourniquet test was positive. Systemic treatment of the severe Vincent's infection and transfusions of blood cleared up the problem, for which splenectomy was, of course, not indicated.

N. K., a boy aged 5 years, had had hemorrhagic otitis media, epistaxis and hematuria following tonsillectomy at 3 years of age, at which time the clotting and bleeding times were normal. Purpuric symptoms recurred for two years until admission to the hospital. Examination of the blood showed: clotting and bleeding times, normal; tourniquet test negative; platelets, 35,000, and white blood cells and differential count, normal. The spleen was not palpable. After treatment with a clotting dietary the platelets rose to 240,000, but fell with the remission of symptoms. Splenectomy brought the platelets to 415,000, with recovery.

M. S., a girl aged 11 years, was admitted to the hospital with repeated and severe epistaxis for a week. Epistaxis and excessive bruising appeared periodically for two years, requiring medical care. The clotting and bleeding times were normal. The tourniquet test was negative, and the platelets numbered 110,000. The spleen was not palpable. The blood picture was normal. The consensus was against splenectomy, but it was performed in another hospital under unfavorable conditions of uncontrollable hemorrhage four months later, with recovery.

Hereditary Hemorrhagic Diseases of Blood-Clotting Dysfunction.—Hereditary hemophilia, a clinical chimera for many a bleeding problem, is too rare a condition to cover so many hemorrhagic disturbances and is too well defined an entity to become a haphazard label of hemorrhagic confusion. Bulloch and Fildes have been able to authenticate only 44 hemophilic families of 273 reported in a century of literature since its classic description by Otto in 1803. The disease occurs exclusively in the male, with a typical familial bleeding pattern, and must not be confused with other familial hereditary hemorrhagic diseases afflicting females. It is transmitted through the female, although the mothers of our hemophilic boys showed normal blood-clotting function. It is characterized by prolonged duration of bleeding, even though the clotting time often is only slightly prolonged. It paradoxically shows a normal bleeding time, because the clotting function of the skin is greater than that of the mucous and serous membranes. Hemophilic blood shows the lowest index of blood-clotting function, with a normal or an increased number of platelets physiologically defective because of their strikingly great resistance.

Table 6.—*The Concentration of Clotting Components and the Index of Blood Clotting Function in Hereditary Hemophilia*

Case	Age, Years	Date	Prothrombin	Fibrinogen	Antithrombin	Platelets	Platelet Disintegration, per Cent	Index
C. M.	2	11/11/30	0.12	0.46	5.7	305,000	30	0.009
C. B.	4	3/ 5/28	0.33	0.64	4.1	370,000	32	0.05
D. B.	6	3/ 5/28	0.13	0.56	6.8	300,000	10	0.003
P. G.	5	5/ 4/30	0.22	0.64	3.6	360,000	34	0.006
D. A.	7	4/19/29	0.22	0.64	5.0	300,000	..	0.02
C. M.	10	8/ 8/30	0.11	1.04	6.5	700,000	37	0.017
J. R.	20	2/13/31	0.11	0.54	6.2	200,000	30	0.01
E. S.	30	9/12/29	0.21	0.54	6.2	230,000	12	0.02
Normal ..	....		1.00	0.50	1.0	250,000	50	0.50

Diagnostic criteria are not always clearcut in transitional hemorrhagic problems.

C. M., a boy aged 2 years, showed no tendency toward bleeding until many bruises appeared following trauma incident to walking at 11 months of age. There was no such history in three preceding generations of the family. The clotting time was six minutes, but the clotting index was 0.009 when the picture of the blood was otherwise normal.

D. B., a boy aged 6 years, with hemophilic joints, showed a clotting time of eleven minutes, a bleeding time of eighteen minutes, normal platelets, a positive tourniquet test and normal clot retraction. The father was allergic. A diagnosis of hemophilia with athrombopenic purpura was made.

G. M., a boy aged 10 years, had required repeated transfusions of blood following slight traumas since birth. He was under my observation for hemophilic arthritis two years ago. Recently bronchopneumonia with otitis media had developed, precipitating spontaneous bleedings from the nose and gums. Examination showed: clotting time, ten minutes; bleeding time, thirteen minutes; platelets, 60,000; spleen, enlarged, and tourniquet test, negative. The case was considered to show transient purpuric picture in hemophilia.

B. S., a boy aged 9 years, was admitted to the hospital as a "hemophilic" after three other hospitals had refused tonsillectomy because of prolonged clotting time. Hemorrhage had first occurred after myringotomy in infancy. Easy bruising followed slight trauma. There was no family history of hemophilia. The clotting index was 0.2, and was increased to normal by calcium therapy and clotting dietary. Tonsillectomy was performed without postoperative bleeding.

Hemophilic bleeding can be controlled but not cured. Mild bleeding may be stopped locally by applications of fresh raw meat, fresh blood or cephalin after the removal of useless clots, since pressure alone is contraindicated. All other hemostatics locally applied are ineffective. Severe bleeding may be checked for four days by the transfusion of whole blood from a suitable donor. Even an ounce of injected blood arrests hemorrhage, but the degree of subsequent improvement depends on the amount of blood given. Stored serum is ineffective in inhibiting clotting but an ounce of fresh serum arrests bleeding within a day.

Protein sensitization is beneficial in diminishing bleeding from superficial injuries as well as in abating recurrences. The child is sensitized to horse serum by subcutaneous injection of 3 cc. of serum. We have seen no difference between the use of diphtheria and antivenene serum. At the end of a week the child is given 2 minims (0.1 cc.) of the serum, injected intradermally, which demonstrates successful sensitization by the wheal formation. Intradermal injection should be repeated monthly for the maintenance of sensitivity, an effect primarily on the capillary system. The treatment is helpful in hemophilic arthritis, for which autogenous blood has also been given intramuscularly. Obviously, the sensitization mechanism is the same. It increases the recession of the hemorrhagic joint, which must be immobilized in a neutral position by means of plaster casts when necessary.

The prevention of hemophilia is a problem for eugenics. The course of the disease can be altered. Nature spares hemophilic new-born infants from the effects of birth trauma by the transmission of an abundance of female sex hormone into the infant's circulation. Thus it is that the disease does not become manifest until late in infancy, unless surgical intervention precipitates bleeding. The disease tends to ameliorate with growth, particularly after the endocrine adjustment of puberty. The absence of the female sex hormone in hemophilic persons has made its isolated preparation a therapeutic indication.[8] I have found that the injection of female sex hormone preparation alone or reinforced by anterior solution of pituitary produces no change in the concentration of the clotting substances from the levels characteristic of hemophilic subjects. I have observed that 500 mouse units of the hormone is necessary to increase the capillary resistance sufficient for it to reveal a negative test within two days in hemorrhagic diseases affecting vascular integrity rather than the blood-clotting content.

Our hemophilic boys with joint manifestations have benefited most during the year in that the periodic effusions were diminished. The hormone therapy has not diminished the tendency to bruising, but has decreased the tendency to bleeding following natural trauma. The avoidance of trauma by limitation of activity requires compensatory physical therapy to improve muscle tone. The maintenance of bodily warmth and vacations in warm climates appear, in addition, to alter favorably the course of the disease. The clotting dietary has produced no appreciable effect on the hemorrhagic status of hemophilic persons. Infection has been found to precipitate bleeding particularly into the skin and joints. Operative emergencies are safely carried out after preliminary transfusion.

Hereditary Thrombasthenic Purpura.—Typical manifestations of thrombocytopenic purpura may be simulated by this hereditary disease involving strikingly abnormal and functionally inactive platelets. It is a familial defect transmitted from generation to generation to both males and females. It is readily differentiated from hemophilia in this respect as well as in the blood picture. The number of platelets fluctuate in different members of these families from relatively low normal to high values. Abnormalities in their size, shape and staining qualities and failure of agglutination are characteristics common to all. As a consequence, the bleeding time is prolonged, the clotting time is normal, the clot retraction retarded, the tourniquet test positive, the spleen rarely enlarged and purpuric bleeding a common symptom.

Such was the case of a girl aged 10 years, who continued to bleed excessively despite splenectomy performed on the basis of supposed chronic thrombocytopenic purpura. She had had recurrent epistaxis and purpura since the first year of life. The mother, who bled mildly, died during childbirth. The son did not bleed. The patient was admitted to the New Jersey hospital for an emergency operation. Preoperative examination of the blood showed: hemoglobin, 60 per cent; red blood cells, 3,200,000; white blood cells, 17,000; polymorphonuclears, 80 per cent; lymphocytes, 8 per cent; monocytes 6 per cent; platelets, 350,000; lysis, 12 per cent; tourniquet test, negative; clotting time, ten minutes; bleeding time fifteen minutes; clot retraction, absent. Transfusion was effective, but vascular therapy was without avail.

DISTURBANCES IN VASCULAR FUNCTION

The bleeding problems of the vascular group are, strictly speaking, nonhemorrhagic diseases. The blood in each disease shows no abnormality in clotting function but capillary dysfunction. The vascular changes are produced in one of several ways: softening of cement substances binding the endothelial cells, injury of the living cells, destruction of elastic fibers and disturbance in innervation for normal contractility of the walls of the vessels. The hemorrhagic disturbances are spontaneous, single or multiple, but with little tendency toward continued bleeding. The bleeding in each of these diseases is better tolerated than in those of abnormal blood content. The transient injury to the capillaries becomes manifest in extravasations of blood, as in scurvy, Schönlein's and Henoch's diseases, on the one hand, and by blood combined with inflammatory exudations, as in severe infectious diseases and in chemical poisoning, on the other. Effective treatment of the heterogeneous group depends on the administration of substances to decrease capillary permeability immediately while the controlling factors are being corrected.

Avitaminosis.—Vitamin deficiency results in degeneration of the capillary endothelium. Scurvy is the classic example of the specific relation of vitamin C deficiency to the extravasation of blood under the periosteum and in the deep muscles, and into the skin and mucous membranes and around hair follicles. Infection accentuates vascular injury. Aschoff demonstrated separation of cement substances binding vascular endothelial cells. The blood-clotting function is normal, except for the positive tourniquet test, which is indicative of capillary injury. In severe cases there are changes in the bone marrow, with interference in the myeloid activity, causing a diminished platelet formation. But the initial vascular phenomena control the clinical picture of scurvy in children.

Deficiency in vitamin B_1 (or F) has likewise been demonstrated to injure the vascular endothelium to the extent of producing hemorrhagic manifestations. There is evidence that deficiency of this vitamin in the diet of the pregnant woman is one of the factors responsible for hemorrhagic disturbances in the new-born child involving vascular injury. Hemorrhagic manifestations definitely associated with avitaminosis have been observed in the course of marasmus and Herter's infantilism. The nutrition of the vascular endothelium evidently depends in part on vitamin adequacy,[9] the minutiae of nutrients, while blood content in clotting substance depends on the gross nutrients, protein and fat.

---

[8] Birch, C. L.: Hemophilia and Female Sex Hormone, J. A. M. A. 97:244 (July 5) 1931.

[9] Kugelmass, I. N., and Samuel, E. L.: Avitaminosis and Blood Clotting Function, Am. J. Dis. Child. 43:52 (Jan.) 1932.

Allergic Purpura.—Recurring symptom complexes of the skin, joints or intestines reveal purpuric spots. Cutaneous eruptions with erythema, urticaria and angioneurotic edema as well as purpura constitute erythema multiforme. Mild arthritis with pain, tenderness and swelling of the joints of the lower extremities clustered with purpuric spots constitute Schonlein's purpura. Attacks of colic, with abdominal pain, tenderness and rigidity, purpuric spots over the skin and blood in the vomitus, urine and stools constitute Henoch's purpura. The blood-clotting function is normal but for the positive capillary resistance test. This heterogenous group of syndromes has a common allergic basis in that increased capillary permeability is suddenly produced by certain foods or bacterial toxins in allergic children.

Table 7.—*Blood Content in Clotting Components in Hemorrhagic Diseases in Infancy and Childhood Resulting Primarily from Vascular Dysfunction*

Case	Diagnosis	Prothrombin	Fibrinogen	Antithrombin	Platelets	Lysis	Tension Test	Index
			I. Nutritional					
A. L.	Scurvy.. . .	1.0	0.64	1.00	270,000	38	+	0.60
A. M.	Scurvy . .	1.0	0.74	1.00	300,000	33	+	0.70
R. N.	Marasmus . .	1.0	0.48	1.07	180,000	37	+	0.45
B. L.	Herter's infantilism	0.9	0.20	1.07	250,000	40	+	0.20
			II Allergic					
A. F.	Erythema multiforme	0.6	0.64	1.25	180,000	30	+	0.35
E. M.	Henoch's purpura.	1.0	0.74	1.00	385,000	35	+	0.40
A. L.	Schonlein's purpura .	1.0	0.44	1.00	270,000	25	+	0.46
			III Infectious					
D. S.	Endocarditis	1.0	1.30	1.00	315,000	39	+	1.30
A. R.	Cardiovascular	1.0	0.64	1.00	225,000	33	+	0.65
J. M.	Cardiovascular	1.0	0.64	1.00	140,000	28	+	0.70
M. H.	Cardiovascular	0.9	0.90	1.00	310,000	29	+	0.80
L. M.	Cardiovascular	1.0	0.64	1.00	270,000	28	+	0.60
A. J.	Diphtheria	1.1	0.64	0.96	255,000	39	+	0.70
M. L.	Pneumonia	1.2	1.64	0.98	300,000	40	+	2.00
S. L.	Pneumonia	1.0	1.96	1.00	215,000	41	+	1.90
G. B.	Pneumonia	1.1	1.54	0.96	340,000	41	+	1.80
H. R.	Encephalitis	1.0	0.94	1.00	310,000	35	+	0.50
M. P.	Tuberculosis	1.0	0.69	1.00	175,000	31	+	0.70
R. G.	Syphilis	1.0	0.94	1.00	310,000	29	+	0.60
L. G.	Syphilis	1.0	0.94	1.00	215,000	30	+	0.90
A. S.	Syphilis.	1.0	0.74	1.00	225,000	46	+	0.40
B. C.	Syphilis	1.0	0.94	1.00	110,000	28	+	0.50
N. C.	Septicemia	1.0	2.30	1.00	1,500,000	38	+	2.35
D. V.	Septicemia	1.1	0.64	0.90	225,000	31	+	0.50
F. G.	Uremia	0.7	1.00	1.00	280,000	34	+	0.70
			IV Toxic					
E. H.	Lead poisoning	2.0	0.46	0.86	200,000	40	+	1.10

Treatment involves clearing up of the infection and simultaneous elimination of the allergic offense. Intestinal disinfectants, colonic irrigations, belladonna suppositories, protein desensitization, ephedrine administration, salicylate medication and intravenous saline and calcium therapy are the effective procedures. Injection of foreign protein results in violent reactions; transfusions are unnecessary and splenectomy, of course, out of order.

E. M., a girl aged 5 years, the daughter of a physician, on presentation had purpuric spots over the lower extremities. There was great anxiety about threatened splenectomy. A year ago, the child had severe tonsillitis, with associated pain in the abdomen, knees and legs. After subsidence of the fever, tonsillectomy was performed on the basis of supposed rheumatic fever. After the operation purpuric extravasations and petechiae appeared over the legs. No such manifestations again appeared until this winter, when a similar syndrome recurred after each infection of the upper respiratory tract. Attacks of urticaria and ecchymoses alternated or appeared simultaneously. The child was admitted to the hospital for study as having a case of allergic purpura. Platelets numbered 385,000; the tourniquet test was positive, and the clotting and bleeding times normal. Both the father and the patient were allergic. Bacterial desensitization is in progress.

A. W., a girl aged 12 years, with similar symptomatology, was seen in consultation during an attack that simulated gastric ulcer. Hematemesis, abdominal pain and epigastric tenderness clouded the clinical picture. The blood picture and a roentgen series of the gastro-intestinal tract were negative. During convalescence deep intramuscular hemorrhages prolonged the pain and tenderness of the lower extremities.

Hemorrhagic Infectious Diseases.—Hemorrhagic symptoms predominate in infectious invasion. Vascular injury usually exceeds the disturbances in myeloid function, but the relative changes in each depend on the severity of the infection. I have observed as confirmation of vascular injury petechiae containing the organisms of meningococcemia, embolic abcesses with visceral hemorrhages in pneumococcemia, nosebleeds and even hemorrhagic sputum in epidemic influenza, thrombotic petechiae consisting of tuberculids, punctate hemorrhages in scarlet fever, bleeding of the mucous membranes in diphtheria, hemorrhages from the mucous membranes in congenital syphilis and purpura associated with the presence of endothelial cells in circulating blood of subacute bacterial endocarditis.

Capillary hemorrhages are not infrequent as consequences of vascular congestion in the course of chronic infections. Rheumatic heart disease induces epistaxis or congestion hemorrhages in the lower edematous extremities. Pertussis precipitates hemorrhages into the conjunctivae and eyelids as well as from the nose and bronchi. Uremia occasionally reveals terminal cerebral, retinal and intestinal hemorrhages rather than petechiae. The hemorrhagic symptoms in uremia parallel the severity of capillary damage from infection and not the degree of nitrogenous retention Increased venous pressure in normal circulatory systems is not a determining factor in these bleeding manifestations.

Arrest of bleeding in the course of infectious invasion may be brought about by therapeutic measures for decreasing capillary permeability. Elimination of infection is, of course, the primary concern, but the self-limited nature of infectious disease necessarily requires vascular medicaments. Clinically, calcium salts have been used in most hemorrhagic diseases for centuries, with favorable effect but based on erroneous interpretations. The calcium required in the clotting mechanism is rarely found wanting in amounts necessary for this process. Even the striking clinical entities involving hypocalcemia never reveal bleeding symptoms.

Table 8.—*Therapeutic Measures for the Arrest of Bleeding*

Procedure	Platelet Deficiency	Fibrinogen-Prothrombin Diminution	Vascular Disturbance
Local..	Coagulen, ultraviolet irradiation	Thromboplastin, meat juice	Styptysate
Oral. .. .	Viosterol	Cephalin, fibrinogen	Calcium salts
Nutritional .	Dietary fat (unsaturated lipids)	Dietary protein (gelatin, viscera)	Base forming foods
Intramuscular	Foreign protein	Blood serum	Pituitary parathormone
Intravenous...	Transfusion	Transfusion	10% calcium salts, 10% gelatin

Calcium therapy is indicated in abnormal bleeding resulting from vascular dysfunction. Its effect is specific in decreasing capillary permeability. The calcium salts administered have no bearing whatever on elevating the well buffered calcium content of the blood. Calcium therapy is best administered intravenously in a 10 per cent solution of calcium gluconate or calcium chloride, from 10 to 25 cc. injected very slowly. Oral administration is, of course, slower in its effect, but may well be supplemented in from 5 to 10 grain (0.33 to 0.65 Gm.) doses offered between feedings to prevent its precipitation into the intestinal tract and subsequent loss in the stools.

The administration of gelatin arrests bleeding by condensing platelets on the vascular bed. It may be injected intravenously in 10 per cent solution from 20 to 40 cc., or fed in 10 per cent solution either directly, sweetened and flavored with vanilla, mixed with milk or as a jelly, which may be kept on ice for two days.

Solution of pituitary is an effective vasoconstrictor in arresting bleeding. This mechanism is operative in vascular beds other than those of the female genital organs. The injection of 0.5 cc. of pituitary frequently suffices to arrest capillary oozing when due to vascular injury. The action is more prolonged than that of epinephrine hydrochloride. It is the vasopressor fraction of the posterior lobe that affects the vascular endothelium in the direction of increased blood coagulation.

Diet affects the hemorrhagic status of patients even in the course of severe infection. It tends to increase the blood clotting components to the extent of producing a thrombotic picture. And yet bleeding from mucous membranes may be present because of embolic phenomena associated with the vascular injury. Therefore, the dietary indicated is for reduction of the increased coagulability of blood. This is attained by fruits, vegetables and carbohydrates, with the exclusion of proteins and fats.

H. R., a boy aged 4 years, was admitted to the hospital with a history of convulsions associated with a severe infection of the upper respiratory tract. Hemorrhage appeared in the orbit and marked purpuric extravasations over the trunk and upper extremities. Facial weakness and complete right hemiplegia followed. Examination of the spinal fluid gave negative results. Examination of the blood showed: clotting and bleeding times, normal; tourniquet test, positive; platelets, 310,000; platelet lysis, 35 per cent, and blood clotting function, normal. An encephalitic infection was the cause of the purpura.

N. C., a boy aged 5 years, had recurrent severe epistaxis in the course of osteomyelitis with septicemia. The blood clotting function was five times normal, with platelets ranging around 1,300,000 per cubic centimeter, and yet vascular injury as a result of the infection was not compensated for by the thrombotic blood picture. On the other hand, I have seen neither hemorrhagic symptoms nor angina in B. S., a boy of 8, with lymphatic leukemia and a platelet count as low as 40,000. It is folly indeed ever to relate the hemorrhagic status to one factor alone.

SUMMARY

1. Hemorrhagic disturbances are syndromes associated with many diseases and produced by varied causes.

2. Clinical examination must be correlated with the blood picture in arriving at a diagnosis of hemorrhagic disease.

3. Methods are presented for the determination of the hemorrhagic status of a patient in terms of degree of function of the vascular endothelium and its blood content.

4. Hemorrhagic problems are rarely patterned according to the textbook, although a clotting component or a vascular alteration determines the controlling factor diagnostic of the disease.

5. Potential hemorrhagic disturbances reveal a low index of blood clotting function improved by a dietary high in protein and fat.

6. Potential hemorrhagic disease of the new-born may be prevented by the oral administration of gelatin solution and prenatally by a clotting dietary.

7. Diagnostic differentiation with appropriate therapy is given critically for problems of thrombocytopenic purpura.

8. Bleeding associated with diseases of the liver is interpreted on the basis of disturbed liver function.

9. Hemophilia, a clinical chimera for abnormal bleeding problems, can be definitely diagnosed and controlled therapeutically.

10. Abnormal bleeding resulting from vascular injury constitutes nonhemorrhagic disease characterized by normal blood clotting function.

11. Avitaminosis results in degeneration of the vascular endothelium observed in scurvy, marasmus and Herter's infantilism.

12. Allergic purpura, previously designated as erythema multiforme, is a symptom complex involving the skin, joints and intestines, Schönlein's purpura and Henoch's purpura, respectively.

13. Severe infections and chemical poisons are primarily toxic for capillaries, requiring vascular medicaments for arrest of bleeding.

14. Atypical hereditary hemorrhagic diseases involving deficiency in "clotting components" or in vascular endothelium still prevail without diagnostic characterizations.

15. A clinical classification of hemorrhagic diseases is offered, based on alterations in vascular endothelium or its blood content.

1060 Park Avenue.

ABSTRACT OF DISCUSSION

DR. HEYWORTH N. SANFORD, Chicago: When Dr. Kugelmass's work was first published, two years ago, it occurred to me that in the new-born a valuable medium had become available for the study of this problem. Here is an organism that has as yet not been influenced by external conditions. In using this method I obtained the values of fibrinogen, prothrombin and antithrombin on thirty-five new-born infants daily and was surprised to find that in every instance these values were high enough to cause an increase in the clotting index or, rather, to show that in all these cases there was every indication against the blood of the new-born clotting unless some external factor was brought into play. In an attempt to manipulate these clotting components to see whether clotting in the new-born could be increased or decreased, a number of things were tried. First, I attempted this by giving large doses of vitamin D in the form of viosterol and using ultraviolet rays. Dr. Kugelmass has stated that he was unable to find very much change in these elements, using vitamin D and ultraviolet rays. That is quite true. But if excessive doses of viosterol, as high as 60 drops a day, are used, and long exposures to ultraviolet rays, as long as ten minutes, one can by increasing the fibrinogen cause a slight increase in the bleeding time and coagulation time. I might say the increase in fibrinogen is compensated for by an increase of antithrombin, so in a few days the patient is worse off than he was before, and his blood will not clot as readily. In continuing the study, it occurred to me that possibly food elements had considerable to do with this. About six months before, I had begun a complement feeding in which two-thirds milk and one-third water and 6 per cent dextrose was given to infants as soon as they were born. If this had anything to do with the clotting components, obviously if protein and fat were withdrawn one would expect to find certain differences. Therefore, in a group of new-born infants, all feeding was withheld for the first five days of life, with the exception of 6 per cent dextrose ad libitum, and Ringer's solution. The children were all normal.

There was no loss of weight or any dehydration temperature The fibrinogen was decreased in all of these cases, so that the children were becoming essentially hemorrhagic I might say that in using this heavy protein and fat feeding as an early complement for the last two years, I have not had a single case of hemorrhagic disease on my service By manipulation of the fat and protein in the diet, it is possible to change the coagulation of the blood practically at will

Dr I Newton Kugelmass, New York *Dr Sanford confirmed strikingly my work on the dietary role in hemorrhagic* diseases, so far as it applies to the new-born This he has done even more effectively than I have been able to demonstrate in the heterogeneous *bleeding problems that have been* studied during the past five years The difficulty of obtaining blood from new-born infants has been compensated for by the clarity of results obtained at that period of life which is as yet uninfluenced by the varied factors that modify the hemorrhagic status of children It is gratifying that Dr Sanford found my index of clotting function applicable to the study of hemorrhagic disease So far as vitamin D is concerned in the clotting mechanism, I have not observed marked changes in the platelet count unless dietary fat had been considerably reduced for prolonged periods of time Fat intake, particularly in unsaturated lipids, appears to parallel the level of blood platelets, but the vitamin D content is not as directly related Its effect is more to mobilize the available calcium for decreasing capillary permeability than to any other phase of the clotting process I have not had occasion to study the effect of large doses of vitamin D or ultraviolet irradiation on the clotting mechanism, as has Dr Sanford I have concentrated more on manifest bleeding problems to determine to what extent they can be influenced by different therapeutic procedures as measured by the index of clotting function

SICKLE CELL ANEMIA

W WILLIS ANDERSON, M D
AND
ROBERT L WARE, M D
ATLANTA, GA

Twenty-two years have elapsed since Herrick[1] first described a case of sickle cell anemia During this period, sixty odd cases of the condition have been reported in detail, and mention has been made in the literature of more than a hundred others Considerable experimental work has been done in investigation of the cause and nature of sickle cell anemia, with results that sometimes conflict

ETIOLOGY AND INCIDENCE

Sickle cell anemia is a disease of young people The average age in the reported cases is 13 years Only five cases have been reported in patients over 30, though one case has been reported at 62[2] The youngest patient whose case was reported was 7 months old[3] The low age incidence is explained by the fact that these patients have a decreased resistance to disease, and usually succumb early to respiratory or other infections

Males are affected more than females, in a ratio of almost 2:1 in the reported cases

The disease affects the colored race primarily, and until recently it was believed that it occurred only in Negroes Cases were reported in an Arab[4] and a Cuban,[5] in neither of whom the possibility of Negro blood was excluded Castana[6] reported a case in an Italian, and Cooley and Lee[7] described a typical case in a Greek child in whom the possibility of Negro blood was practically excluded Recently, Sights and Simon[8] have added to the literature a well marked case in a man of Scotch-Irish blood These cases definitely establish the occurrence of sickle cell anemia outside of the colored race, although it is among Negroes that the disease is chiefly found

All except two cases have been reported from the United States In this country the disease is distributed roughly according to the proportion of Negro population, the greatest number of cases being found in the Southern states

The disease shows a definite familial tendency. In a number of cases in which blood from other members of the patient's family was examined, sickle cells were found Huck[9] demonstrated this feature quite decisively in a study of two families through three generations He concluded that the condition is transmitted according to the mendelian law as a dominant trait.

PATHOLOGY[10]

The pathology of sickle cell anemia is limited to the spleen, liver and bone marrow; the most characteristic picture is found in the spleen The spleen varies greatly in size, cases having been reported in which it weighed 24[11] Gm and 621[12] Gm In general, it may be said that the spleen enlarges rapidly during infancy and gradually becomes atrophic after the child reaches the ages from 4 to 6 years The average age of patients with enlarged spleen is 5 years The largest spleens are usually found in the youngest patients, though there are exceptions to this rule.

The splenic capsule is thickened and often rough The cut surface of the organ is darker than usual and

---

Read before the Section on Pediatrics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932

[1] Herrick, J B Peculiar Elongated and Sickle Shaped Red Blood Corpuscles in a Case of Severe Anemia, Arch Int Med **6**: 517 (Nov) 1910

[2] Sydenstricker, V. P Sickle Cell Anemia, South M J **17**: 177 (March) 1924

[3] Anderson W W, and Ware, R L Sickle Cell Anemia, Am J Dis Child, to be published

[4] Archibald R G A Case of Sickle Cell Anemia in the Sudan, Tr Roy Soc Trop Med & Hyg **19**: 389 (Jan) 1926

[5] Stewart, W B Sickle Cell Anemia Report of a Case with Splenectomy, Am J Dis Child **34**, 72 (July) 1927

[6] Castana V Gigantocytes and Sickle Cells Pediatria **33**: 431 (April 15) 1925, abridged, J A M A **84**: 1966 (June 20) 1925

[7] Cooley, T B, and Lee, P Sickle Cell Anemia in a Greek Family Am J Dis Child **38**: 103 (July) 1929

[8] Sights W P, and Simon S D Marked Erythrocytic Sickling in a White Adult Associated with Anemia, Syphilis and Malaria, J Med **12** 177 (June) 1931

[9] Huck J G Sickle Cell Anemia, Bull Johns Hopkins Hosp **34**, 335 (Oct) 1923

[10] Summarized from the literature
- (*a*) Bell, A J, Kotte R H Mitchell, A G Cooley, T B, and Lee, P Reports of Two cases in Young Children in Which Splenectomy Was Performed Am J Dis Child **34**: 923 (Dec) 1927
- (*b*) Bennett, G A Sickle Cell Anemia, Arch Path **7**: 801 (May) 1929
- (*c*) Graham, G S A Case of Sickle Cell Anemia with Necropsy, Arch Int Med **34**: 778 (Dec) 1924
- (*d*) Hein G E McCalla R L, and Thorne W G Sickle Cell Anemia With Report of a Case with Autopsy, Am J M Sc **173**: 763 (June) 1927
- (*e*) Huck, J G Sickle Cell Anemia, Bull Johns Hopkins Hosp **34**: 335 (Oct) 1923
- (*f*) Hahn, E V Sickle Cell (Drepanocytic) Anemia, Am J M Sc **175**: 206 (Feb) 1928
- (*g*) Hahn E V, and Gillespie E B Sickle Cell Anemia, Arch Int Med **39**: 233 (Feb) 1927
- (*h*) Jaffe, R H Die Sichelzellenanämie, Virchows Arch f path Anat **265**: 452 1927
- (*i*) Landon, J F, and Lyman, A V Sickle Cell Anemia with a Case Report of Splenectomy, Am J M Sc **178**: 223 (Aug) 1929
- (*j*) Rice, A R The Splenic Lesion in Sickle Cell Anemia Bull Johns Hopkins Hosp **43**: 398 (Dec) 1928
- (*k*) Sydenstricker, V P, Mulherin, W A, and Houseal R W Sickle Cell Anemia Report of Two Cases in Children, with Necropsy in One Case, Am J Dis Child **26**: 132 (Aug) 1923
- (*l*) Steinberg, B Sickle Cell Anemia, Arch Path **9**: 876 (April) 1930
- (*m*) Wollstein, M, and Kreidel, K V Sickle Cell Anemia, Am J Dis Child **36**: 998 (Nov) 1928
- (*n*) Yater W M, and Mollari, M The Pathology of Sickle Cell Anemia, J A M A **96**: 1671 (May 16) 1931
- (*o*) Cook, W C A Case of Sickle Cell Anemia with Associated Subarachnoid Hemorrhage, J Med **11**: 541 (Dec) 1930
- (*p*) Sydenstricker (footnote 2)
- (*q*) Stewart (footnote 5)

[11] Steinberg (footnote 10 *l*)

[12] Landon and Lyman (footnote 10 *i*)

frequently shows light red or yellow spots which prove to be infarcts On microscopic examination the characteristic picture is seen The malpighian bodies are greatly diminished in size, are fibrotic and may not show germinal centers The sinuses about the corpuscles are dilated and distended with red cells so that the corpuscles appear to be swimming in a pool of blood Rice[13] believes that this is a congenital malformation of the splenic sinuses and suggests such a cause for the disease The pulp is usually invaded by red cells and may be either swollen or atrophic and fibrotic, according to the size of the spleen Large numbers of sickle cells are seen

The liver is practically always enlarged The parenchyma shows moderate albuminous or fatty degeneration, and the sinusoids are dilated Quantities of sickle cells are present, though not so many as in the spleen Some observers[14] have noted phagocytosis of sickle cells by the Kupffer cells The cells lining the sinusoids may show hemosiderin pigment

The long bones show hyperplasia of the marrow The inner half of the cortex has been found honeycombed by marrow interspersed with bony trabeculations An unusual number of nucleated red cells are found, nucleated sickle cells are frequently seen In general, there is evidence of hyperactivity of the bone marrow

The lymph glands are generally enlarged, but microscopic examination does not reveal any characteristic changes The ulcers of the legs show nothing of special interest

MECHANISM OF SICKLING

In view of the fact that both nucleated and reticulated sickle cells have been reported by several observers, it appears fairly certain that the transition of the red cells to the sickle shape occurs early in their development The factors that influence this transition have been the subject of a great deal of investigation, which has led to varying conclusions

Hahn and Gillespie[15] were able to produce sickling immediately by saturating a suspension of cells from a patient with sickle cell anemia with carbon dioxide, and, to reverse the process, to recover round cells by saturation with oxygen This led to the theory of anoxemia as a cause of sickling

Scriver and Waugh[16] applied this theory to a living patient They effected venous stasis in an arm by a tight Esmarch bandage and found a decreased percentage (23 per cent) of oxygen in the blood and saw sickling of 95 per cent of the cells Under conditions of optimum circulation, produced by massage and hot water, they found an increased oxygen concentration (62 5 per cent) and only 5 per cent sickle cells This experiment in vivo correlates perfectly with Hahn and Gillespie's experiment in vitro

On the other hand, in a study of seventy-seven tuberculous patients, three of whom showed the sickle cell trait and one active sickle cell anemia, Dolgopol and Stitt[17] failed to find any relationship between the degree of anoxemia and the severity of the disease Moreover, Graham and McCarty,[18] under anaerobic conditions, withdrew blood from the right auricle of the heart twenty-seven hours after death, when anoxemia should have been extreme, and found no more sickle cells than had been present during life

A number of other theories[19] have been advanced, but the actual mechanism is still in question.

SYMPTOMATOLOGY

The history elicited from a patient with sickle cell anemia, while suggestive, is by no means diagnostic The patient is usually presented for examination because of weakness, easy fatigability, shortness of breath or "general run-down condition" If one of the acute exacerbations characteristic of the disease is in progress, there may be severe abdominal pain with nausea and vomiting, the syndrome may suggest acute rheumatic fever, with joint pains, a temperature from 101 to 103 F and leukocytosis In the absence of these acute manifestations of the disease, a history of one or more such attacks can usually be obtained The informant will explain that the patient has been weak and sickly all of his life, and that the common diseases of childhood were unusually severe There will be a history of frequent colds, tonsillitis and possibly pneumonia or tuberculosis As a matter of fact, the disease is often discovered while the patient is being treated for some respiratory infection

On physical examination, the patient is found to be rather small for his age and undernourished Anemic pallor, of course, is obscured by the skin of the Negro, but it is quite evident in the conjunctivae and oral mucous membranes of these patients The sclerae are almost always found to be jaundiced or to have a pale greenish appearance

The tonsils are usually diseased, and there is a more or less generalized enlargement of the lymph glands This adenopathy is most evident in the cervical and axillary lymph nodes which drain the troublesome respiratory tract

Cardiac enlargement is present in about one half of the cases Sickle cell anemia is sometimes associated with rheumatic heart disease, but by no means often enough to explain the cardiac hypertrophy on that basis Analysis of the reported cases shows that, more often than not, the rheumatoid symptoms and enlarged heart occur independently of each other In most instances there is a soft systolic murmur at the apex, not transmitted, which is explained by the anemia

Examination of the lungs often shows some degree of congestion This is considered secondary to the disease, but it is mentioned to emphasize the importance of pulmonary complications

The abdomen may be tender during an exacerbation but the pain and tenderness are seldom localized The liver is enlarged in about one half of the cases, the edge being felt two or three fingerbreadths below the costal margin The spleen is usually enlarged in patients under 4 years of age, but it is seldom palpable in patients older than 7 years In babies it is often enormously hypertrophied, reaching the iliac crest, and may be quite tender An enlarged spleen diminishes in size during a remission of the acute symptoms

In some of the patients past the age of puberty, evidence of retarded sexual development is seen. Scanty or absent pubic and axillary hair may be noted, and cryptorchidism is occasionally found. Patients who showed these findings were otherwise generally underdeveloped.

---

[13] Rice (footnote 10 *j*)

[14] Jaffe (footnote 10 *h*) Wollstein and Kreidel (footnote 10 *m*)

[15] Hahn (footnote 10 *f*) Hahn and Gillespie (footnote 10 *g*)

[16] Scriver, J B, and Waugh, T R Studies on a Case of Sickle Cell Anemia Canad M A J **23**: 375 (Sept) 1930

[17] Dolgopol V B, and Stitt R H The Sickle Cell Phenomenon in Tuberculosis Patients, Am Rev Tuberc **19** 454 (April) 1929

[18] Graham G S and McCarty S H Sickle Cell (Meniscocytic) Anemia, South M J **23**: 598 (July) 1930

[19] Emmel, V E A Study of the Erythrocytes in a Case of Severe Anemia with Elongated and Sickle Shaped Red Blood Corpuscles Arch Int Med **20** 586 (Oct) 1917 Fradkin W Z, and Schwartz, L S Sickle Cell Anemia J Lab & Clin Med **15**. 519 (March) 1930 Graham, G S, and McCarty, S H Notes on Sickle Cell Anemia, J Lab & Clin Med **12**. 536 (March) 1927 Josephs H W Sickle Cell Anemia, Bull Johns Hopkins Hosp **40**: 77 (Feb) 1927

Chronic ulcers of the legs are almost universal among the adolescent and adult patients, but seldom occur in the younger ones. Only two cases of ulcer have been reported in patients under 16 years, while practically all patients of 16 or over have shown either active ulcers or scars. The ulcers resemble those of syphilis, occurring on the shins and ankles, and having a punched-out appearance.

Laboratory examination of the blood shows marked anemia, an average red cell count around 2,500,000 and a corresponding hemoglobin from 40 to 50 per cent. In severe cases the count drops below 1,000,000, and the hemoglobin may be from 10 to 12 per cent. The white blood count is usually from 11,000 to 12,000, even in the absence of infection; the differential count shows an increase in neutrophils. Varying degrees of anisocytosis and poikilocytosis are noted in the stained smear, and infrequent sickle cells are seen. Nucleated red cells are found, and there is an increase in reticulocytes. The red cells show an increase in resistance to hemolysis. The van den Bergh test is occasionally positive in the direct phase and almost always positive in the indirect phase. Urobilinuria is noted in many cases.

As was mentioned, sickle cells are seen but infrequently on stained slides. The characteristic and diagnostic shape of the cells is brought out by sealing a drop of blood between a slide and a thin cover slip. Petrolatum was first used,[20] but later cedar immersion oil was found to be more convenient for sealing the cover slip. The preparation is incubated at room temperature for twenty-four hours. Sickle cells appear after from one to four hours and become increasingly numerous, reaching from 60 to 100 per cent by the end of twenty-four hours. The cells are elongated and crescentic, with threadlike processes extending from the tips. If the preparation is preserved for from four to six days, the cells are seen to have reverted to the normal round shape.

DIAGNOSIS

The diagnosis is based on the characteristic appearance of the red cells, the presence of anemia and the evidence of jaundice. There are only two conditions that need to be considered in the differential diagnosis.

The sickle cell trait exists in about 7 per cent of normal healthy Negroes. Blood from these subjects shows sickle cells in the same manner as that from patients with sickle cell anemia, but there is no anemia or any other abnormal characteristic. The sickle cell trait produces no symptoms and is not incompatible with long life; it has never been known to develop into sickle cell anemia.

There is another condition, which has been called Dresbach's syndrome,[21] in which elliptic cells roughly resembling sickle cells are found in the blood of normal subjects. No symptoms are produced by this condition. The number of abnormal cells is not increased in a sealed preparation, thereby differing from sickle cell anemia.

The simplicity and conclusiveness of the sealed preparation as a method of diagnosis makes it advisable for use. Every Negro with anemia, jaundice or other suggestive signs should be studied for sickle cell anemia, and in white people the disease should be considered as a possible diagnosis in cases of unexplained anemia.

TREATMENT

As yet, no satisfactory method of treatment has been found. General measures for building up the body resistance are in order, and stimulants to the blood-forming organs have value. Some patients have been relieved of all symptoms by liver diet, while others have not been benefited. Transfusions have only a temporary effect. Splenectomy has been advocated, and several such operations have been performed. The operation was usually followed by a period of improvement, but in half of the cases the anemia recurred after a few months. The removal of an enlarged spleen appears to be more beneficial than the removal of a small spleen.

Frequency of Occurrence of Signs and Symptoms of Sickle Cell Anemia[22]

	Per Cent
Symptoms:	
Abdominal pain	55
Joint pain	51
Weakness	41
Vomiting	28
Physical Signs:	
Greenish-yellow sclera	78
Heart murmur	75
Adenopathy	55
Enlarged liver	53
Enlarged heart	48
Pathologic changes in lung	39
Ulcer or scar of leg	39
Fever	33
Enlarged spleen	30
Infantile genitalia	17
Laboratory Results:	
Fragility decreased (68 per cent of the 35 cases in which fragility was determined)	68
Nucleated red cells present	57
Indirect van den Bergh positive	55
Urobilinuria	42
Direct van den Bergh positive	12

PROGNOSIS

Between the acute phases of the disease are periods of one to two years during which the patient feels fairly well and is able to carry on the usual routine of life, though he is seldom able to perform heavy work.

---

[20] Emmel (footnote 19, first reference).

[21] Ward, G.: Anemias of the Hemolytic Jaundice Group, Proc. Roy. Soc. Med. **13:** 1 (Nov.) 1919.

[22] Data assembled from cases reported in footnotes 1, 3, 4, 5, 7, 8, 10 *a, c, d, e, f, g, h, i, k, m, n* and *o*; 16, 17, 19 (second reference) and the following:

Alden, H. S.: Sickle Cell Anemia: Report of Two Cases from Ohio Illustrating Its Hemolytic Nature, Am. J. M. Sc. **173:** 168 (Feb.) 1927.

Anderson, H. B.: Sickle-Cell Anemia: Report of an Active Case, Am. J. M. Sc. **171:** 641 (May) 1926.

Browne, E. Z.: Sickle-Cell Anemia, M. Clin. North America **9:** 1191 (Jan.) 1926.

Cook, J. E., and Meyer, J.: Severe Anemia with Remarkable Elongated and Sickle Shaped Red Blood Cells and Chronic Leg Ulcer, Arch. Int. Med. **16:** 644 (Oct.) 1915.

Cooley, T. B., and Lee, P.: The Sickle Phenomenon, Am. J. Dis. Child. **32:** 334 (Sept.) 1926.

Dreyfoos, M.: Sickle Cell Anemia, Arch. Pediat. **43:** 437 (July) 1926.

Hamilton, J. F.: A Case of Sickle Cell Anemia, U. S. Vet. Bur. M. Bull. **2:** 497 (May) 1926.

Sydenstricker, V. P.: Sickle Cell Anemia, M. Clin. North America **12:** 1451 (March) 1929.

Jamison, S. C.: Sickle Cell Anemia, South. M. J. **18:** 795 (Nov.) 1925.

Levy, Joseph: Sicklemia, Ann. Int. Med. **3:** 47 (July) 1929.

Mason, V. R.: Sickle Cell Anemia, J. A. M. A. **79:** 1318 (Oct. 14) 1922.

Milliken, G.: A Case of Active Sickle Cell Anemia, M. Rec. & Ann. **22:** 49 (March) 1928.

Moore, S.: The Bone Changes in Sickle Cell Anemia with Note on Similar Changes Observed in the Skulls of Ancient Mayan Indians, J. Missouri M. A. **26:** 561 (Nov.) 1929.

Smith, J. H., Jr.: Sickle Cell Anemia, M. Clin. North America **11:** 1171 (March) 1928.

Steinfield, E., and Klauder, J. V.: Sickle-Cell Anemia, M. Clin. North America **10:** 1561 (May) 1927.

Washburn, R. E.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia, Virginia M. Semi-Monthly **15:** 490 (Feb. 10) 1911.

Moser, R. A., and Shaw, W. J.: Sickle Cell Anemia in the Northern Negro, J. A. M. A. **84:** 507 (Feb. 14) 1925.

Miles, W. G.: Sickle Cell Anemia; Report of Two Cases, J. Florida M. A. **17:** 374 (Feb.) 1931.

The patient may survive a number of acute exacerbations, but owing to his decreased resistance, he is a prey to the various infectious diseases, and usually succumbs to one of these. Few patients live beyond the age of 35 years.

ABSTRACT OF DISCUSSION

Dr. George S. Graham, Birmingham, Ala.: There has been a good deal of difficulty in establishing a satisfactory definition of the disease "sickle cell anemia." The difficulty arises particularly from the fact that too many normal people exhibit the peculiar deformability of the red cells that has given the disease its name. While from 7 to 8 per cent of all Negroes show this erythrocytic abnormality, only an occasional individual suffers an associated anemia of disabling grade. Sydenstricker recognized the problem and suggested that the disease may exist in a latent as contrasted with an active form. Similarly, the deformity might be considered merely as an indication of some peculiarity of the red cell or of the blood as a whole, while the term "sickle cell anemia" might be reserved for those cases that show definite evidence of disease. Given the peculiar red cell quality as an inherited trait, it is probable that in any particular individual the subsequent course of evidents will depend on accessory factors that are not as yet understood. The red cells as seen in the centrifuge tube or in fresh preparations under the microscope appear soft and pliable and have a viscous, sticky quality. This and other considerations have led to the belief that the deformity is purely a physical phenomenon rather than one dependent on particular conditions of hemoglobin combination, as has been hypothecated by others. I am in agreement with Drs. Anderson and Ware in finding that the cells exhibit an increased resistance to hypotonic salt solutions. However, there can be no doubt that within the body they suffer an accelerated rate of hemolysis. The evidence for this is found quite regularly in the active phases of the disease and is demonstrable post mortem even in the organs of nonanemic individuals, in whom deposits of hemosiderin are found in the renal epithelium and in the reticulo-endothelial cells, particularly those of the liver and lymph nodes. Differential diagnosis is important. The abdominal pain, leukocytosis and fever typical of the crises that are seen in anemic subjects may suggest acute abdominal disease. The associated jaundice may simulate that of cholecystitis. I have seen two cases in which the acute abdominal symptoms had led to the removal of normal appendixes. Here is perhaps the most practical aspect of the whole problem, and it should be emphasized that in dealing with the Negro patient one should always keep the disease in mind.

Dr. Thomas B. Cooley, Detroit: This is a disease of childhood. The earliest reports led one to think that it was about as frequent and as important in adults as in children. Obviously, from further study, that is not the case. I have an idea of the reason for this somewhat different from the one given by the authors. Drs. Anderson and Ware think that most of the patients die before they reach adult life. I have not watched my patients to adult life, but I have the impression that there is a tendency to improvement—toward what may be called a "compensated" state, such as one sees in hemolytic icterus. How correct that impression is I am not sure, but I have a number of patients who are having less trouble now than they did; fewer hemolytic crises and few abdominal and joint pains. So I am inclined to believe that there may be a natural tendency to improve. None of the patients that I have lost have died of actual effects of sickle cell anemia. One died of tuberculosis, another of endocarditis and a third of a surgical accident. The others, so far as I know, are all living. I want to call attention again to the general similarity of this disease to congenital hemolytic icterus. With regard to the question of latency, those who are familiar with Gänsslen's studies of hemolytic icterus will remember that a large number of the persons he investigated in affected families showed one or more of the recognized characteristics without ever having the hemolytic anemia itself. It seems to me that there is a close analogy there with sickle cell anemia. There are three main symptoms in sickle cell anemia which call for treatment, if one can do anything to relieve them. The first is the hemolytic crises, which occur, as a rule, in connection with acute infections, and in the course of which the blood is likely to drop to a pretty low level. Temporarily, the patients are easily handled by transfusion, and that is the obvious immediate treatment. As for prevention, the feeding of iron or liver does no good. Of course, the removal of probable sources of infection, such as diseased tonsils, and the treatment of infected sinuses may help, but on the whole I have found nothing definitely protective in any of these things. I do think that I have seen a lessening of the hemolytic crises and more of a tendency to reach a compensated state after splenectomy. From this point of view the operation seems worth while. The other two things of main importance in the symptomatology are the abdominal and joint crises. The abdominal pains seem to be due to splenic thrombosis. If the spleen is removed shortly after one of these crises, it will be found to show infarcts due to thrombosis, which may be very large. I don't think the joint pains are of the arthritic type. I should like to be able to relate them to the thrombotic process. They are not relieved at all by antiarthritic measures. They are liable to occur in the patients who have the splenic crises, and often at about the same time. In the two cases in which I have tried it, they seemed to be relieved as definitely by splenectomy as were the abdominal pains.

THE INCIDENCE OF CARCINOMA IN CERTAIN CHRONIC ULCERATING LESIONS OF THE STOMACH

GEORGE W. HOLMES, M.D.
AND
AUBREY O. HAMPTON, M.D.
BOSTON

The successful treatment of carcinoma by any method available at the present time seems to depend more on early diagnosis than on any other single factor; carcinoma of the stomach is no exception to this general rule. Through the efforts of the Society for the Control of Cancer and the medical profession in general, the public is being educated to the necessity of early diagnosis and treatment. Patients are appearing at clinics with a much earlier stage of the disease than formerly, and the responsibility for correct diagnosis is becoming increasingly greater as well as more difficult.

Among the problems that arise, perhaps one of the most difficult is the determination of the benign or malignant character of chronic gastric ulcerations. While it is true that the diagnosis is comparatively easy either by the roentgen rays or by examination on the operating table in well developed cases, it is also true that in the earlier and less well defined cases the differentiation is often impossible by either method. Numerous cases are cited in which mistakes have been made by both surgeons and pathologists, and the correct diagnoses were not established until serial sections and microscopic studies of the ulcer-bearing areas had been carried out. In these early cases the clinical history may be of little value in the differential diagnosis. Analysis of the gastric contents may be the same in either case. A response to ulcer treatment may also be misleading. Patients with early malignant ulcers often do well for a time on an ulcer regimen, and the lesion itself may appear to get smaller as shown by roentgen studies. The time lost in carrying out such a procedure is also a definite risk if the lesion proves to be malignant. In an attempt to solve this problem it occurred to one of us (A. O. H.) that the location of

---

From the Massachusetts General Hospital,

Read before the Section on Gastro Enterology and Proctology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

the ulcer-bearing area might be of considerable importance in the differential diagnosis.

In general, authors of textbooks and the medical literature pass over this subject with the statement that benign gastric ulcers are chiefly found in the lower third, along the lesser curvature, and that a large percentage of these ulcers are within the duodenum and pyloric valve. A few pathologists and roentgenologists, however, have studied this subject more carefully and have attempted to localize the areas within the stomach in which benign ulcers or carcinomas are more likely to be found.

Orator[1] studied 330 cases of gastric ulcers obtained from Eiselberg's clinic; his conclusions are based on the gross appearance and the histologic examination. Of the total of 330 ulcers, 300 were in the middle third of the stomach near the lesser curvature, and 30 were in the prepyloric region. When studied histologically, 6 of the 300 ulcers on the lesser curvature and 15 of the prepyloric ulcers showed evidence of malignant degeneration; 15 others were questionable. Orator does not state clearly the position of this questionable group. There were no benign ulcers on the greater curvature or in the fundus of the stomach.

Lehmann examined the stomach and duodenum in 1,000 cases at autopsy for signs of active or healed ulcers. Ulcers, or the scars from ulcers, were found in 202 cases. In the stomach the relation of scar to active ulcers was as 9 to 1; the number of active ulcerations increased as the pylorus was approached. By far the greater number of scars were located toward the cardiac end of the stomach. Seventy-one per cent of active ulcers were observed in the region of the lesser curvature of the stomach. Not a single instance of benign ulcer was observed on the greater curvature.

Haudek,[2] reviewing his experience of many years in the roentgen diagnosis of gastric lesions, recognized the difficulty in distinguishing between benign and malignant lesions in the prepyloric region. The prepyloric region, he stated, is the most frequent site of cancer; about 80 per cent of carcinomas start there. Ulcers are certainly less commonly found in this area, occurring in about the proportion of 1 to 10 as compared with ulcers in the pars media. He further stated that a considerable percentage of these ulcers degenerate and become malignant; about one third of the prepyloric ulcers undergo this change, while only 3 per cent of the ulcers of the pars media do so. He concluded that the difficulty in differential diagnosis with the tendency to malignant degeneration is sufficient reason for recommending operation in all prepyloric ulcerations.

Sproull,[3] in a careful review of the literature, was able to find only 10 proved cases of benign chronic ulcerations on the greater curvature. More than half of the cases reported either were not proved histologically, or on examination were found to be malignant. He concluded that no lesion of the greater curvature should be treated by medical measures, no matter how small the lesion or how closely the clinical and roentgen findings may simulate benign ulcer, for the chance that it is not benign is so great that one will be almost surely missing the opportunity to remove an early cancer.

Dresser[4] quoted Lehmann and referred to the frequency with which benign ulcer occurs on the lesser curvature of the stomach.

Camp,[5] in a summary of the facts concerning prepyloric ulcer obtained from the literature and from the material at the Mayo Clinic, stated that it is apparent that the roentgenologic simulants of this lesion are numerous and far more common than prepyloric ulcer itself, and he advised withholding a diagnosis unless an ulcer niche can be demonstrated without question.

Stone and Ruggles[6] have also studied the cause of deformity of the prepyloric region and have noted the frequency with which these lesions are found to be malignant. They reported 1 case of proved benign prepyloric ulcer.

In general, it may be stated that those authors who have studied the location of benign and malignant gastric ulcerations agree that there are definite ulcer-bearing areas and that these areas are along the middle third of the lesser curvature, at the pyloric valve and in the duodenal bulb. There also seems to be general agreement that carcinoma may occur anywhere in the stomach, that it is most frequently found in the prepyloric region, and that it rarely involves the duodenal bulb. In the early diagnosis of a gastric carcinoma the prepyloric region is particularly important since a lesion occurring in this area gives symptoms early, and these patients are likely to report for observation at a time when a cure is possible. Carcinomatous lesions occurring in other parts of the stomach may be symptomless until the lesion is well developed. The operative procedure is also simpler when the lesion occurs near the pylorus than in other parts of the stomach. The early correct diagnosis of these prepyloric lesions is, therefore, of special importance.

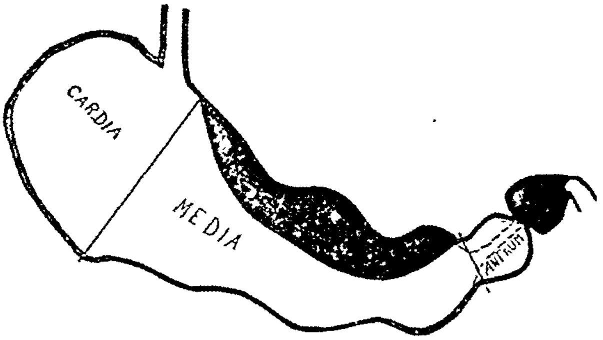


Diagram of the stomach, showing the anatomic divisions we have selected and the areas in which benign ulcers usually occur. Prepyloric ulcers as discussed in this paper occur within the antrum and do not involve the pyloric ring. Malignant ulcerations may occur anywhere in the stomach. The shaded areas indicate the position of benign ulcerations.

Before taking up the discussion of our material it is perhaps well to state definitely what we understand by the term "prepyloric region." As we understand it and as it is referred to in this paper, it is that portion of the stomach which forms the pyloric antrum and which, as the peristaltic waves pass over the stomach, forms a canal about 1 inch (2.5 cm.) in length just to the gastric side of the pylorus (see the accompanying figure).

---

1. Orator, V.: Zur Pathologie und Genese des Carcinoms und Ulcuscarcinoms des Magens, Virchows Arch. f. path. Anat. **256**: 202, 1925.

2. Haudek, M.: *Observations on X Rays in the Diagnosis of Early Carcinoma of the Stomach*, British J. Radiol. **2**: 421 (Sept.) 1929.

3. Sproull, J.: A Discussion of the Occurrence of Benign Ulcer on the Greater Curvature, Am. J. Roentgenol. **25**: 464 (April) 1931.

4. Dresser, R.: The Roentgen Examination for Peptic Ulcer, with Special Reference to Those Cases Presenting Unusual Difficulties in Diagnosis, New England J. Med. **205**: 395 (Aug. 20) 1931.

5. Camp, J. D.: The Roentgenologic Significance of Pyloric and Prepyloric Deformities, Radiology **16**: 847 (June) 1931.

6. Stone, R. S., and Ruggles, H. E.: The Diagnostic Value of Prepyloric and Pyloric Roentgen Findings, Am. J. Roentgenol. **27**: 193 (Feb.) 1932.

The material we wish to present is based on a study of the records of the Massachusetts General Hospital during the past ten years and includes the combined roentgen, surgical and pathologic reports. It is rather disappointing that of this large amount of material only 128 records of benign gastric ulcerations were obtained in which all of the data were complete. It is only during the last three years that sufficient attention has been given to the localization of ulcerating lesions. Of these 128 benign gastric ulcerations, 83 were in the media close to the lesser curvature, 28 at the pylorus, "6 near the pylorus" and 2 in the prepyloric region; in 9 cases the location was in doubt. (table 1).

Table 1.—*Location of Ulcer of Stomach (Roentgen, Surgical and Pathologic)*

	Number	Per Cent
Location (?)	9	8.0
Pylorus	28	21 9
Near pylorus	6	4.6
Prepyloric	2	1.5
Media	83	74 0
Total	128	100

We have also studied the material for the years 1928 and 1929, based on roentgen examination alone. In these two years there were 128 benign gastric ulcerations and 121 gastric carcinomas. The location is as follows (table 2): Of the ulcers, 39 occurred in the pylorus, 6 in the prepyloric region, 80 in the midportion of the stomach and 3 in the cardiac region. Of the carcinomas, 75 occurred in the prepyloric and pyloric regions, 7 in the midportion of the stomach and 21 in the cardia; 8 were classified as diffuse. The relative proportion of benign to malignant prepyloric ulcerations was approximately 1 to 12. In the first group studied there were 8 cases each of which at operation showed a lesion near the pylorus in the prepyloric region which was diagnosed at operation as a benign ulceration and in which a gastro-enterostomy was done. Follow-up of these cases has shown that the diagnosis was incorrect in every case, the correct diagnosis being carcinoma (table 3).

Table 2.—*Location of Ulcer and Carcinoma; Roentgen Diagnosis (1928 and 1929)* *

	Ulcer	Carcinoma
Pyloric end (pylorus)	39	75
(prepyloric)	6	
Media	80	17
Cardia	3(?)	21
Diffuse	0	8
Total	128	121

* Relative proportion of prepyloric ulcer to carcinoma approximately 1 to 12.

SUMMARY

From a study of the literature and of our own cases we believe that it is fair to state that any chronic, indurated, ulcerating lesion occurring in the pyloric antrum within 1 inch of the pylorus, but without involving the pylorus, should be considered malignant until proved to be otherwise, and that proof of the absence of malignancy in such lesions is obtained only by serial section and careful microscopic examination. It is not safe to interpret such lesions as benign from roentgen examination alone or from observation on the operating table. Given a case presenting such a lesion in the prepyloric area, it is probably safer and wiser to treat the lesion by wide surgical removal than by medical or palliative treatment. The same is true of all chronic, indurated, ulcerating lesions occurring on the greater curvature and probably with most lesions occurring in the cardiac end of the stomach. The benign, chronic, indurated, peptic ulcer occurs on the lesser curvature above the antrum or in the region of the pyloric valve. Accurate localization of these lesions is of the greatest importance, but is sometimes difficult; foreshortening of the shadow of the stomach on the x-ray film may make the niche of the ulcer appear closer to the pyloric opening than it actually is. Careful fluoroscopic observation or films taken at various angles should obviate this error. Large ulcers occurring low on the lesser curvature may extend into the region of the antrum; similar ulcers arising in the region of the pyloric valve may extend into the stomach. They should not be classified as prepyloric ulcers.

Table 3.—*The Roentgen, Operative and Follow-Up Diagnosis in Eight Selected Cases of Prepyloric Ulcer*

Hospital Number	Roentgen Findings	Operative Findings	Final Diagnosis
283365	Gastric ulcer at the prepylorus (?); malignancy	Gastric ulcer on the lesser curvature 3 cm. above the pylorus (1927)	Tumor involving the pyloric end (1929), adenocarcinoma, removed; operative and pathologic diagnosis
273408	Obstruction at the outlet; probably malignant	Ulcer on the gastric side of pylorus (1925)	Operative findings, 1929: carcinoma, inoperable
272829	Obstruction at the outlet of the stomach	Thickening exactly at pylorus with ulcer above it (1925)	Roentgen and clinical findings, obvious carcinoma; patient died in January, 1927
262864	Obstruction at the pylorus	Lesion on the lesser curvature which ended abruptly at the pylorus; old callus ulcer (1924)	No operation; definite carcinoma; roentgen and clinical findings
481562	Obstruction at the pylorus, probably ulcer	Indurated lesion near the pylorus (1922)	Carcinoma lower third, 1923; adenocarcinoma· operative and pathologic findings
461562	Ulcer near the pylorus	Benign ulcer (1926)	Mass head of pancreas and large ulcer just above pylorus; malignant condition seemed certain (1927); operation
253001	Obstruction at the pylorus, probably ulcer	Ulcer above the pylorus (1921)	Enlarged liver, jaundice; roentgen diagnosis: carcinoma of the stomach (1922)
250411	None	Gastric ulcer (1920)	Palpable mass, obvious carcinoma (1922)

In this presentation we have purposely avoided a discussion of the various roentgen findings which help to differentiate benign from malignant ulcerations. other than position. They are all important, and all facts, including those obtained from the history and physical examination, should be considered in the final diagnosis.

ABSTRACT OF DISCUSSION

Dr. John D. Camp, Rochester, Minn.: It has been repeated here several times today that the roentgenologic distinction between gastric ulcer and carcinoma in most instances is quite easily accomplished; I think all will agree that this is probably true. Efforts are continually being made to improve the technic so as to diagnose operable malignant lesions of the stomach earlier, but in early cases differential diagnosis is more difficult and it is in this group that the information which the authors have presented will be found of considerable help. I should like to speak particularly of the lesions in the of the stomach to which the authors have referred. When one considers these, one finds among them 66 per cent of all gastric cancers, 69 per cent of all benign neoplasms of the stomach, and only 10 per cent of benign gastric ulcers. Since benign gastric ulcers in the antrum are comparatively rare, one must agree with the authors that a chronic ulcerating lesion in this region should be considered malignant until proved otherwise. The antrum is a favorite site of spasm referred from a gastric ulcer situated higher up on the lesser curvature or elsewhere in the stomach, and too frequently the spasm produces a rather marked six hour gastric retention, which may obscure the fundamental lesion and lead one to think one is dealing with a definite obstructing pyloric lesion. Early malignancy in the antrum may be obscured by the resultant stasis of barium, secretion and food remnants. Even when a pyloric lesion seems certain, the accuracy of the roentgenologic examination can be considerably enhanced if, in cases presenting obstruction, lavage is done before the roentgenoscopic examination. The differentiation between gastric ulcer and cancer cannot be accomplished in all cases. We must remember that as roentgenologists we are dependent solely on what we can see and when more than one disease may produce grossly the same pathologic picture, the decision must be left to the clinician, the surgeon and the pathologist.

Dr. Frank Smithies, Chicago: I am rather surprised at the statement that the literature contains very little reference to the location of gastric ulcer with respect to gastric cancer. While I thoroughly agree with the authors in their general conclusions, I wonder how they came to overlook the careful tabulations which the late Dr. A. J. Ochsner and I placed in our book "Cancer of the Stomach."

Dr. Martin E. Rehfuss, Philadelphia: As I see it, the question of peptic ulcer involves three factors. The first factor I would call an x factor because it is an unknown one. The second is the question of acid and pepsin, not acid alone, but pepsin. The third is a neuromuscular mechanism concerning which relatively little is known but of which a great deal is beginning to be learned. Dr. Cole gave as beautiful an elucidation of the question of gastric ulcer as I know of and he made a statement which we as clinicians can absolutely subscribe to and that is that gastric ulcer disappears with great rapidity. There has been a strong tendency to pass over today the distinction between gastric and duodenal ulcer. I have seen gastric ulcer on the lesser curvature and on the posterior wall disappear in two weeks, but I have seen it recur in a year on a number of occasions; therefore to assume that it is latent and disappears after treatment is a serious matter. There are three people I knew who paid the penalty for this assumption. Duodenal ulcer is an altogether different story. It is a disease which in the first hundred cases of my associates and me showed about 78 per cent of high acid figures. Moynihan reported 72 per cent of high acid in this group. Duodenal ulcer occurs in a little thin walled cap in 95 per cent of the cases, and the danger of duodenal ulcer is obviously greater from the standpoint of perforation. As to the etiology, one point that was not brought forward was infection. I think that is important because of the seasonal incidence and the studies of Duval; and the exacerbations of the disease suggest that; nevertheless, there are many points in the x factor, toxemia, allergy, heredity, and all those things that make an ulcer possible. With regard to the acid stage I disagree with Dr. Cole. I will look at his beautiful lantern slides and accept them. I will look at the elucidation of the pathologic changes in ulcer. I have never seen anything better; but he must present the figures on acid before I will accept that statement. I spent seventeen years studying the acidity of the stomach and I know that human beings belong in groups. One group presents a rather high acidity and, barring accidents and influenza and typhoid and age, they maintain that type of acidity throughout the greater part of their lives. I have records which go over fifteen years of gastric analyses that were made. Therefore I say that this acid factor is and must be a factor in the evolution of ulcer, because all the concrete testimony, surgical and medical, shows that it plays a rôle. This is one point the surgeon is fighting. He measures his effect not only by disappearance of ulcer but also by the control of acidity, and he gets the marginal type when the secretory mechanism is not controlled. I believe what Dr. Cole has said about gastric ulcer. If the patients are put to bed on a proper dietary, the big craters will disappear. Nevertheless I insist on roentgen control.

Dr. Lewis Gregory Cole, New York: I almost always agree with Dr. Holmes in problems of general roentgenologic diagnosis and roentgenologic therapeutics, but in gastro-intestinal diagnosis, in which our technic is radically different, our interpretation of the observations, and particularly our application of these observations to the many problems in gastro-enterology, often are at variance, and this presentation is no exception. The authors conveyed the idea that organic ulcerative lesions of the pylorus were malignant and that organic lesions of the lesser curvature above the sulcus were benign and they emphasized this by a schematic drawing of the stomach. The lesser curvature between the sulcus and the esophagus and the entire cap was filled in with black and the pyloric region on both the lesser and greater curvatures was white. I fear that they led the audience to believe that lesions occurring in the white region should be considered malignant and those lesions that occur in the black region should be regarded as nonmalignant. The cap is never the site of malignant tumors and is therefore eliminated from controversy. I feel that gastro-enterologists throughout the country and some roentgenologists with less experience than Drs. Holmes and Hampton will apply this schematic drawing to the solution of the problem of malignant conditions of the stomach. I fear that those less experienced in roentgenology will attempt to apply the schematic sketch of the stomach to the solution of the cancer problem. In my opinion if this statement and sketch were universally accepted as a prime factor in the differential diagnosis of malignant tumors of the stomach it would set back the science of roentgenologic diagnosis of gastro-intestinal lesions by nearly two decades, in fact almost to the period when reports read "There is a filling defect of the stomach which can be proved malignant or nonmalignant only by surgical exploration." In fact, I think it would be worse than this because those inexperienced in interpretation may derive a sense of false security of nonmalignancy in lesions along the lesser curvature and, still worse, be led to innumerable partial gastrectomies for nonmalignant lesions that would heal in a short time under proper medical treatment. If this schematic drawing were accepted I dread to think of the mortality of surgical procedures based on such roentgenologic evidence. The fatalities as a result of operative intervention in nonmalignant pyloric lesions would far exceed the five or even three year cures of gastric ulcer that might result from partial gastrectomy. Moreover, if adequate roentgenologic changes of the pyloric region are intensively studied, the differentiation between malignant and nonmalignant lesions of this region can be made in the vast majority of cases based on a single complete serial examination. In the few cases in which this differential diagnosis cannot be made from a single examination, a subsequent examination in two or three weeks will almost certainly give a differential diagnosis between a benign and a malignant lesion. The benign lesion will improve on rest in bed and the other is less likely to. I am certain that, in my experience, for every malignant organic lesion I could show a slide of a nonmalignant organic ulcerative lesion in the region which the authors have designated as the white area in which only malignant growths occur. I present a series of slides as controverting the fact that ulcerative organic lesions of the pylorus should be considered malignant until proved otherwise by surgical exploration.

Dr. George W. Holmes, Boston: What Dr. Cole said requires some restatement of my position. I don't agree with him that the surgical results are so bad; perhaps the Boston surgeons are more conservative; I don't feel as he does toward the surgeon. The paper that Dr. Hampton and I have presented has as its object the prevention of just such a situation as Dr. Cole has brought up—the case that he has cited. I don't wish to give the impression that this is the only way of finding out whether a patient has a benign or malignant ulcer, but it is one way of clearing up just such a situation. As to the slides Dr. Cole has shown, we have never stated that benign ulcers did not occur in the prepyloric region, and in the vast material which Dr. Cole has available he can no doubt find some that are benign, but they are not common If he will take all the cases he sees in a year and compare the percentage of cases presenting benign ulcer in the prepyloric area with those presenting benign ulcerations on the lesser curvature or in the pyloric region, I feel sure he will agree with us I do not agree with him on all the slides he has shown A good many of them were not prepyloric ulcers as I define them Some were, but in these he did not state whether or not a pathologic diagnosis was made, or the number of sections taken I will not accept the pathologist's report made from a single section in these cases

RECENT OBSERVATIONS IN SERUM DISEASE

LUKE W HUNT, M D
CHICAGO

It was thought that it might be profitable to study the records of serum disease as observed in the Durand Hospital since its establishment, nineteen years ago, and to discuss in a brief manner some of the pertinent questions

FREQUENCY

Of the 2,859 patients who received diphtheria antitoxin, 804, or 28 1 per cent, showed serum reactions; of the 876 patients who received scarlet fever antitoxin 198, or 22 7 per cent, showed reactions, and of the 55 patients who received antimeningococcus serum 45, or 81 8 per cent, showed reactions These figures do not include all of those who received serum but only those patients who were observed for ten days or longer; those who died before ten days or were discharged before that time are not included in the series

The incidence of serum disease has varied in different reports, and the statistics from hospitals in which considerable numbers of cases have been observed have given the proportion of reactions from 14 to 50 per cent. It seems that the number of reactions may vary with the particular serum, and especially with the amount injected In hospitals such as the Durand Hospital, where many late and severe cases of diphtheria, including laryngeal cases, are admitted, the amount of antitoxin given is often relatively large and the reactions are correspondingly frequent

Several factors enter into the determination of the frequency of reactions One is individual susceptibility, which varies greatly Another is the toxic element of the horse serum The opinion has been expressed [1] that the serum of certain horses is more likely to cause serum disease than that of other horses Fresh serum is, as a rule, more prone to cause reactions than serum that has been preserved for some time The toxicity of fresh serum decreases rapidly during the first ten days A slight decrease occurs during the first two months, after which the deterioration is extremely gradual Besredka found that serum twenty years old produced anaphylactic shock in a sensitized animal Another factor is the previous introduction of serum As many patients nowadays receive toxin-antitoxin or other forms of immunization, the percentage of reactions on subsequent serum administration may be numerous Perhaps the most important factor in determining the occurrence of reaction is the quantity of serum injected The quantity of serum given in this series in the cases observed for ten days or more is given in table 1 It will be observed that the percentage of reactions increases as the quantity of serum increases In the series receiving the larger doses, the relatively small number of cases deprives the relative percentages of much value Of the patients receiving 10 cc or less of serum, 14 3 per cent gave reactions, of those receiving from 10 to 30 cc, 23 8 per cent gave reactions, of those receiving from 30 to 50 cc, 37 per cent gave reactions, of those receiving from 50 to 100 cc, 44 8 per cent gave reactions, and of those receiving 100 cc, and over, 61 7 per cent gave reactions The increased frequency of reactions with increased dosage has been mentioned by practically all authors

Contrary to the opinion of some, the reactions after the injection of scarlet fever antitoxin are not more numerous or more severe than after the use of diphtheria antitoxin In fact, the frequency of reactions in this series is slightly less, being 22 7 per cent as compared with 28 1 per cent for diphtheria notwithstanding the fact that many patients with scarlet fever had been immunized with toxin-antitoxin or had had diphtheria antitoxin

TABLE 1—*The Frequency of Serum Reactions in Diphtheria Patients Receiving Different Quantities of Refined Diphtheria Antitoxin*

Total Amount of Antitoxic Serum, Cc	Cases with Reaction	Cases Observed for 10 Days or More Without Reaction	Total Cases	Percentage of Cases Showing Reaction	Percentage of Cases Showing Reaction with Whole Serum[3]
1 9	119	634	753	14 3	10 9
10 19	140	531	671	20 8	27 5
20 29	117	287	404	28 9	28 5
30 39	149	245	394	37 8	37 3
40 49	54	100	154	35 0	42 2
50 59	63	95	158	39 8	48 3
60 69	21	35	56	38 5	42 5
70 79	58	62	120	48 3	66 6
80 89	15	24	39	38 4	49 0
90 - 99	26	13	39	66 6	77 7
100 109	11	10	21	52 3	44 4
110 119	10	7	17	58 8	75 0
120 129	1	0	1	100 0	66 6
130 139	4	4	8	50 0	75 0
140 149	6	0	6	100 0	66 6
150 159	7	6	13	53 8	50 0
160 350	3	2	5	60 0	100 0
	804	2 055	2 859	28 1	34 1

The frequency of reactions in epidemic meningitis is much higher, owing in a great measure to the relatively large doses of serum injected In a series of fifty-five patients who received antimeningococcus serum, reactions occurred in 50 per cent of those who received from 10 to 50 cc of serum, in 75 per cent of those who received from 50 to 100 cc, in 85 per cent of those who received from 100 to 200 cc, and in 100 per cent of those who received more than 200 cc of serum

When the serum is injected intravenously, the incidence of serum disease rises rapidly and usually takes the form of an immediate reaction In this series of cases the immediate reaction occurred in 66 6 per cent of the patients who received from 1 to 10 cc, intravenously, in 84 6 per cent of those who received from 10 to 20 cc, and in 90 per cent of those who received from 20 to 30 cc On account of the severe reactions likely to occur after the intravenous injection of serum, this method of administration should be used only in severe and neglected cases in which inadequate doses of or no antitoxin had been administered before admission

One gets the impression that the frequency of serum disease occurs less in Negroes than in white people, but no exact study has been made of this question

While the incidence of the natural allergies increases rapidly in the early age periods, the age incidence of

---

From the John McCormick Institute for Infectious Diseases

[1] Park, W H, and Thorne, B Am J M Sc 132: 686 (Nov) 1906

serum disease seems not to change during life. This is shown in table 3. The percentage of incidence of serum disease is practically the same for the different age groups.

Much effort has been expended with the purpose of lessening the property of horse serum of inducing serum disease. Rosenau and Anderson[2] stated that refined antitoxic serum, precipitated and dialyzed in accordance with the Gibson method, is quite as toxic, bulk for bulk, as the untreated serum from which it was obtained. Park and Thorne,[1] however, state that the concentrated antitoxin (Atkinson-Banzhaf method) materially reduces the tendency to serum disease They admit, of course, that the portion of the globulins still accompanying the antitoxin is capable of causing serum disease In comparing the frequency of serum disease, in an analysis of 692 cases in which whole serum was administered, with the reactions in this series, Weaver[3] found very little difference in the percentage of serum reactions during the years 1906 to 1908. Of the 692 cases observed for ten days or more reported by Weaver, 34.1 per cent presented reactions, while in the 2,859 cases reported in this series 28.1 per cent showed reactions Be that as it may, the treatment of serum by the various methods of concentration increases its antitoxic power, and a distinct advantage is obtained, so far as bulk is concerned, for the serum reaction depends partly on the quantity of serum given.

Table 2—*Frequency of Serum Reactions in Scarlet Fever Patients Receiving Different Quantities of Scarlet Fever Antitoxin*

Amount of Serum, Cc	Therapeutic Doses	Cases Showing Reaction: No History of Previous Administration of Serum	Cases Showing Reaction: History of Previous Administration of Serum	Cases Observed 10 Days or More Without Reaction	Total Cases	Per Cent of Cases Showing Reaction	Percentage of Cases Showing Reaction, Excluding Those with History of Previous Administration of Serum
10-18	1	168	22	638	828	22.[illegible]	20.8
20-36	2	7		27	34	20.5	
30-54	3	..		5	5	0	
50-72	4	.		4	4	0	
70-92	5	1		4	5	20.0	
		176	22	678	876	22.7	

Table 3—*The Age Incidence of Serum Disease in Scarlet Fever and Diphtheria*

Age in Years	Number of Patients Injected	Number of Cases of Serum Disease	Percentage Incidence of Serum Disease
0 - 4	915	231	22.7
5 - 9	1,291	324	25.0
10 - 14	550	166	30.1
15 - 19	252	76	30.1
20 - 29	474	113	23.8
30 - 39	153	37	24.1
40 - 49	45	12	26.6
50 - 70	15	3	20.0

DAYS ON WHICH REACTIONS OCCURRED

As observed in this series, the interval between the injection and the appearance of the reaction varies from a few minutes to thirty days Table 4 shows the number of cases falling on the different days. Of the 804 cases with reaction after the injection of diphtheria antitoxin, in 690, or 85.8 per cent, the reaction occurred before the eleventh day. The largest number of reactions fell on the days from the sixth to the eleventh. A reinjection carried out during the normal incubation period following the first injection, that is, within from eight to twelve days, exerts no influence on the incubation period or the frequency or duration of the rash. If the reinjection is given after three weeks following the primary injection, the resulting reaction takes place, on the average, after distinctly shorter incubation than the normal period—the accelerated reaction of Pirquet and Schick.

SYMPTOMS

The ordinary serum disease following a first administration of horse serum is rarely of such severity as to threaten the life of the patient—it is a source of annoyance rather than of danger; but the immediate reaction following a repeated injection or in those who are sensitive to horse serum is apt to be more apprehensive. The symptoms of serum disease following a primary injection of serum are fever, skin eruptions, edema, swelling of the lymph glands, leukopenia and joint pain. These occur in various combinations, one being most prominent in one case, another in another. All may occur in a given case or most may be absent.

Table 4—*The Number of Serum Reactions Falling on Each Day After Injection*

Days	Diphtheria	Scarlet Fever	Epidemic Meningitis
1	58	16	1
2	22	7	
3	21	1	
4	47	3	3
5	81	16	4
6	102	32	8
7	111	31	11
8	88	20	7
9	83	20	8
10	71	12	1
11	61	9	1
12	14	8	1
13	13	3	
14	6	4	
15	4	1	
16	3		
17	2		
18	8	1	
19	2		
20	3	1	
21	7	1	
22			
23			
24	9	1	
25	2	1	
26	1		
27			
28			
29	1		
30			
Total number of cases	804	193	45

In a considerable number of cases the reaction remains local. It was noted in this series and has been reported by others that the local reactions occur earlier than the general, and that they usually run an afebrile course, with little or no general disturbance. Occasionally after a rather early local reaction at the site of the injection of the serum and after an interval of several days, a general reaction occurs. Recurrent attacks of serum disease following a primary injection were observed in several cases and may be explained as separate reactions to the specifically different proteins of the serum. These recurrent attacks occur not only with whole serum but also with refined serum.

The most typical of serum reactions begin with local swelling at the site of the injection, the surrounding skin showing urticarial wheals and erythema. Soon the urticaria becomes general over the body, accompanied by severe itching. Fever often precedes and accompanies the exanthem and sometimes persists after its disappearance. The lymph glands adjacent to the site of the injection show enlargement and may be tender to the touch, and there may be enlargement of the lymph glands throughout the body. With the general urticaria the patient is restless and irritable or he may be drowsy.

---

[2] Rosenau and Anderson Bull 36, Hyg Lab, U S P H & M H S, 1907

[3] Weaver, G H Serum Disease, Arch Int Med 3: 485 (June) 1909

The edema of serum disease usually affects the face and dependent parts of the body. It is especially prominent in the loose tissues of the eyelids, hands and feet, and lips, which may be so swollen as to disfigure the features completely. The urticaria usually disappears as suddenly as it comes, and the fever and general ill feeling usually subside with it. The urticaria is usually of short duration, only occasionally lasting three or four days. In one case of the series the urticaria lasted for five days, in two cases for seven days and in one case eight days. The larger the quantity of serum given, the more severe are the symptoms likely to be, although occasionally a severe reaction occurred after the injection of a small quantity of serum.

The eruption of serum disease is usually urticarial, though it may be scarlatiniform and morbilliform or present the type known as multiform exudative erythema. Next to urticaria, a simple erythema is most common. This may be limited to the skin about the injection, or it may extend over a large part of the body. It is often associated with urticarial lesions. The redness disappears on pressure and is usually transient, lasting from one to three days.

Fever is inconstant. Cases of severe urticaria may run an afebrile course. In many cases there is a prodromal fever for a day preceding the eruption, but more often the fever appears at the same time as the eruption.

Pain in the joints may occur as the only symptom of serum disease, but usually it precedes, accompanies or follows other manifestations. More or less joint symptoms were observed in 24 per cent of the cases of this series. In some the pain was severe and persistent; in others, slight and transient, and in some cases only a stiffness was complained of. The pains are spontaneous, increased by motion and sometimes by touch. After from one to three days the pains disappear, leaving the joints without permanent alteration. Swelling of the joints is unusual. The joints most often involved are those of the hands and the knees, although any of the joints may be involved, and often several are affected simultaneously or in succession.

A slight transient albuminuria may occur, although infrequently. Leukopenia has been noted also. The mucous membranes are usually unaffected but in some cases in this series there was swelling of the tongue and of the lining of the throat. Involvement of the respiratory mucous membrane was observed in several cases, as evidenced by hoarseness and cough. Mucous membranes that have been the seat of the diphtheritic process are more prone to swelling at the time of serum reaction. Such phenomena were observed rather frequently in cases of laryngeal diphtheria. After all the laryngeal symptoms had disappeared for several days, with the onset of the urticaria the children again became very hoarse and croupy, but this was never severe enough to require intubation.

Disturbances of the stomach, as shown by local discomfort, nausea and vomiting, were observed in several cases.

More or less general disturbance accompanies all cases of severe serum reaction. Adults sometimes complain of headache, backache and severe aching in the muscles. In the more severe cases there is a considerable degree of prostration; the pulse is weak and irregular, and the symptoms of shock appear.

A more serious form of serum disease, the so-called immediate reaction of Pirquet and Schick, sometimes occurs in persons who have been rendered hypersensitive by previous injections of serum or in some manner of which we are ignorant. The height of sensitiveness after an injection of serum is reached in two or three months, after which the sensitiveness gradually declines but probably never disappears completely. Accelerated reactions have been observed nine and fourteen years after a primary injection. Following the second injection of serum after the normal incubation period, that is, from eight to twelve days after the first injection, there is occasionally no acceleration of reaction, but, if accelerated, it may be moderately or markedly so, the last being the so-called immediate reaction. Such reactions may be local or general. In the immediate local reaction an intense edema appears at the site of the injection a few minutes or hours after the secondary injection, reaches its height in twenty-four hours, and gradually subsides in from two to five days. Two cases of severe local reaction occurred in this series. One of these is cited to show the intensity which the reaction may assume.

A girl, aged 14, was admitted as having diphtheria and was given 40,000 units of diphtheria antitoxin in the lateral aspect of the right thigh. She had had toxin-antitoxin two years before, and a serum reaction developed with urticaria and edema, on the second day. The reaction subsided within twenty-four hours. Three days after admission and after the serum reaction had subsided, scarlet fever developed,[^] as she had been exposed before admission. On the fourth day after admission she was given one therapeutic dose of scarlet fever antitoxin in the lateral aspect of the right thigh but not at the site of the injection of the diphtheria antitoxin. Within twelve hours the right leg was swollen, edematous, indurated and very painful. The swelling and induration extended for 4 inches above Poupart's ligament and to the ankle. There were small subcutaneous hemorrhages at the site of the injections. With local treatment and epinephrine hypodermically the condition subsided and within eight days there was no evidence of a reaction.

In the local reactions, slight chilliness and fever were often observed. In several cases of the series there was a general immediate reaction, which appeared in from a few minutes to twenty-four hours and, in addition to the usual signs and symptoms of serum disease, was accompanied by severe asthmatic forms of dyspnea, cardiovascular disturbances with cyanosis, collapse, chills, nausea and vomiting, and occasionally renal disturbance including complete suppression of urine for several hours. In this category belong the cases that may prove fatal. However, no deaths have occurred.

If the second injection is given when hypersusceptibility is not marked, as, for example, after a small primary dose or several years after a primary injection, the accelerated reaction is not likely to be immediate but appears in from two to five days. Under these circumstances the reaction may appear as an ordinary case of serum disease or may be more severe.

No case of death that could be ascribed to injected serum occurred in this series. Immediate reactions of more or less severity have occurred in 58 of the 804 cases of serum disease after the injection of diphtheria antitoxin, and in 16 of the 198 cases of serum disease after the injection of scarlet fever antitoxin. Most of these reactions occurred after the intravenous injection of serum. However, careful desensitization is carried out on all patients before serum is given, and epinephrine is usually given at the same time as the serum.

The method of desensitization varies with the individual. If there is no history of previous administration of serum and no history of hives, hay fever or asthma, 5 minims of undiluted serum is given subcutaneously and doubled at thirty minute intervals until 1 cc. has been given. If no symptoms develop with 1 cc. of the undiluted serum, the full dose of antitoxin is given. If there is a history of previous administration of serum or a history of hives, hay fever or asthma, desensitization is carried out by injecting subcutaneously 3 minims (0.3 cc.) of a 1 : 10 dilution of the serum and increasing the amount injected at thirty minute intervals until 1 cc. has been given. Then from 0.5 to 1 cc. of the undiluted serum is given subcutaneously and if no reaction occurs the full dose is given. The time required for desensitization and the amount of serum injected for this purpose depend on the state of hypersensitiveness observed.

TREATMENT

In the *treatment of ordinary serum disease, nothing* new is offered. Many vain attempts have been made to prevent the occurrence of serum disease by desensitization and other methods. The administration of calcium salts is rational with the purpose of combating the edema. It seems to have little effect in preventing the reaction. Calcium gluconate, 1 drachm and 2 drachms (4 and 8 Gm.) three times a day with additional milk feedings in the morning and afternoon for ten days, was tried in a series of 107 patients who received scarlet fever antitoxin, but the percentage of reactions, 24.3, and the intensity of the reactions were not affected. A series of 98 patients who received diphtheria antitoxin received the same treatment but the percentage of the reactions, 37.9, and the intensity of the reactions were not affected. Intravenous administration of 1 Gm. of calcium gluconate two or three times a day has been tried after the serum reaction developed, and in some cases it seemed to have a tendency to allay the symptoms; in others it was without effect. It is perhaps less efficient in this respect than calcium chloride, the only advantage being the facility with which it is administered. Sodium thiosulphate intravenously has been tried in a small number of cases but without marked benefit. Solution of epinephrine hypodermically will allay the itching and cause the disappearance of the urticarial wheals, but its action lasts for only an hour or two, at which time the symptoms reappear with equal severity. Repeated injections of epinephrine together with morphine have given the best results in alleviating the symptoms. Ephedrine by mouth is much less effective. If collapse occurs, following the administration of serum, the treatment follows the directions indicated in conditions of collapse and shock in general. Hypodermic injections of rapidly diffusible stimulants, such as epinephrine and atropine, the administration of physiologic solution of sodium chloride and the like are to be employed. It is best, in our experience, to give small doses of epinephrine solution, which may be drawn into the syringe and injected at the same time as the serum to prevent the immediate reaction instead of employing the drug after the symptoms have developed. This procedure has given good results and is used as a routine in cases in which an immediate serum reaction seems likely to develop.

CONCLUSIONS

Serum disease occurred in 28.1 per cent of 2,859 patients who received diphtheria antitoxin, in 22.7 per cent of 858 patients who received scarlet fever antitoxin, and in 81.8 per cent of 55 patients who received antimeningococcus serum.

The occurrence of a serum reaction after the injection of diphtheria and scarlet fever antitoxin is determined in part by the susceptibility of the individual, by the toxic properties of the serum, and, in the largest measure, by the total quantity of serum given. Concentrated diphtheria antitoxin calls forth reactions in about the same proportion as does whole serum in corresponding bulk.

The serum reactions after the use of scarlet fever antitoxin were slightly less in frequency than those after the use of diphtheria antitoxin. They were not more severe.

The incidence of serum disease does not vary widely in the various age groups.

The interval between the injection and the appearance of the reaction varies from a few minutes to thirty days. The *majority of the reactions appear before the eleventh day.*

637 South Wood Street.

ALLERGIC MIGRAINE

ALBERT H. ROWE, M.D.
OAKLAND, CALIF.

In a recent review of the subject of allergic migraine, I[1] stated that Vaughan,[2] in 1922, was the first to report two cases of migraine due to food allergy and that in 1927 he[3] reported ten other cases. Laroche, Richet and Saint Girons,[4] in 1919, had suggested that migraine might be due to food sensitization. In 1927 I[5] stressed food allergy as a cause of migraine in two different articles, and in 1928 I[6] reported forty cases with allergic migraine relieved with elimination diets. In 1930, in an article on allergic toxemia and migraine, eighty-six cases of such headache were analyzed.[7] Balyeat[8] cited one case of allergic migraine in 1928, two cases in 1929 and fifty-five cases in 1930. Recently, he and Rinkel[9] have studied 202 cases of migraine from the allergic point of view and have emphasized the frequency of migraine in children.[10] Beecher[11] reported four cases in 1929. Eyermann,[12] in 1931, reported good results in 69 per cent of a group of sixty-three patients with headaches. The causative foods were determined by diet trial based on slight or positive skin tests and confirmed by diet trial.

---

[1] Rowe, A. H.: Food Allergy, Its Manifestations, Diagnosis and Treatment with a General Discussion of Bronchial Asthma, Philadelphia, Lea & Febiger, 1931.

[2] Vaughan, W. T.: Diseases Associated with Protein Sensitization, Virginia M. Monthly **49:** 316 (Sept.) 1922.

[3] Vaughan, W. T.: Allergic Migraine, J. A. M. A. **88:** 1383 (April 30) 1927.

[4] Laroche, Richet and Saint Girons: Alimentary Anaphylaxis, translated by Rowe, Berkeley, Calif., University of California, 1930; French edition, Paris, 1919.

[5] Rowe, A. H.: Allergy in the Etiology of Disease, J. Lab. & Clin. Med. **13:** 31 (Oct.) 1927; Food Allergy: A Common Cause of Abdominal Symptoms and Headache, Food Facts **3:** 7, 1927.

[6] Rowe, A. H.: Food Allergy: Its Manifestations, diagnosis and Treatment, J. A. M. A. **91:** 1623 (Nov. 24) 1928.

[7] Rowe, A. H.: Allergic Toxemia and Migraine Due to Food Allergy, California & West. Med. **33:** 785 (Nov.) 1930.

[8] Balyeat, R. M., and Brittain, F. L.: Allergic Migraine: Based on the Study of Fifty-Five Cases, Am. J. M. Sc. **180:** 212 (Aug.) 1930.

[9] Balyeat, R. M., and Rinkel, H. J.: Further Studies in Allergic Migraine: Series of 202 Consecutive Cases, Ann. Int. Med. **5:** 713 (Dec.) 1931.

[10] Balyeat, R. M., and Rinkel, H. J.: Allergic Migraine in Children, Am. J. Dis. Child. **32:** 1126 (Nov.) 1931.

[11] Beecher, W. L.: Migraine or Sick Headache, Illinois M. J. **55:** 123 (Feb.) 1929.

[12] Eyermann, C. H.: Allergic Headache, J. Allergy **2:** 106 (Jan.) 1931.

Phillips[13] has affirmed the frequency of food allergy as a cause of migraine and has recommended the elimination diets in its control. This completes the summary of the contributions that have established food allergy as a frequent cause of migraine.

Woltman,[14] in 1925, stated that migraine was usually hereditary and protean in its manifestations. He emphasized the fact that migraine might be mild or severe, occurring in any part of the head, evidencing itself in a dull headache, in transient scotoma or in periods of mental depression or inertia or by transient paresis, paresthesia or aphasia. He said that most so-called gastric or bilious headaches are migrainous in type. The severe type of migraine at times suggested brain tumor and often lasted many days, being associated with severe nausea and vomiting and great exhaustion and mental depression. This variability of symptoms corresponds with the experience of other students of migraine. In his classic monograph on migraine, Liveing,[15] in 1873, emphasized the periodicity, the disturbances in sight, speech, tactile sensations and psychic functions, the drowsiness, dizziness, headache, nausea, vomiting and the frequent association of migraine with epilepsy, spasmodic croup and asthma. Thus, migraine includes a wide variety of symptoms associated with headaches and as such is considered in this contribution.

Allergy as a cause of migraine has been considered in other articles during the last two decades. Tileston,[16] in 1918, commented on the similarity of migraine to asthma and reported headaches in one boy which were due to eggs, meat and fish. Brown,[17] in 1920 and in 1925, reported headaches arising from various foods and he felt that they were due to protein poisoning. His skin tests were all negative. Moloney,[18] in 1928, stated that migraine was most frequent in patients who had a personal or familial history of allergy. Allergy as a cause of migraine was also considered and discarded by T. R. Brown[19] in 1921 and more recently in 1929; by Minot[20] in 1923; by McClure and Huntsinger[21] in 1927 and 1928; by Laing[22] in 1927; by Hartsock[23] in 1927, and by Stevens[24] in 1929. Most of these writers felt that migraine was due to hepatic dysfunction, indigestion, endocrine disturbances, fatigue, nervousness and various other causes. However, no reports of successful results exist comparable to those which have been recorded from the elimination of allergic foods, showing that these hypothetic considerations have not been of marked value in the control of migraine. The occasional benefit derived from carbohydrate or protein free diets reported by Brown, Minot and Hartsock could have resulted from the elimination of allergenic foods in such diets. Several of these writers warned against the futility of abdominal or nasal surgery and of the extraction of teeth and were discouraged with the results from the control of ocular strain or defects.

TABLE 1.—*Statistics on One Hundred and Thirty Private Patients with Headache as a Major Complaint*

Ages	No. of Cases	Personal History	No. of Cases
10-15	1	Nasal congestion	44
15-35	39	Hay fever	20
35-55	70	Bronchial asthma	6
55 up	20	Chronic indigestion	53
		Nausea	71
Males	31	Vomiting	51
Females	99	Abdominal pain	25
		Mucous colitis	6
Duration of Symptoms		Constipation	57
½-1 year	9	Diarrhea	15
2-5 years	26	Eczema	26
Over 5 years	95	Urticaria	39
Family History	No. of Cases	Operations with No Relief to Headaches	No. of Cases
Family history (positive)	90 (69.2%)	Appendectomy	11
		Cholecystectomy	7
Headache	56	Intestinal obstruction (not found)	2
Asthma	30	Ovarian cysts	2
Hay fever	15	Hysterectomy	1
Eczema	5	Curettement	2
Urticaria	7	Artificial menopause (radium)	2
Chronic indigestion	21	Nasal surgery	11
Skin Reactions		Tonsillectomy	5
Foods	23	Extraction of teeth	4
Inhalants	15	Spinal puncture	1
Miscellaneous	7	Total	48

In the consideration of allergic migraine, the other causes of headache, such as sinusitis, eye strain, arteriosclerosis, arthritis, focal infections, nephritis, brain tumors and pelvic disorders must be considered and kept in mind in the differential diagnosis. Thorough diagnostic studies including all types of laboratory investigations indicated by the patient's history and physical conditions must be carried out in each patient, so that headaches due to any of the causes named may be recognized. Allergic migraine, however, occurs in patients with other types of pathologic changes, treatment of which without proper elimination diets is not effective in the control of the headaches.

PERSONAL STUDIES

Statistics on 130 private patients, one of whose major complaints was headaches, are presented and the reported relief is based on a recent follow-up in each case. My studies have been largely confined to adults. However, in many of the patients the symptoms started in childhood, as shown by the data on the duration of symptoms. Moreover, the literature emphasizes the frequency of migraine in youth, when it is probably often overlooked or ignored. Most of my patients had had their symptoms longer than five years, and the majority of them had nausea or vomiting associated with their headaches. Personal history of conditions which are frequently due to allergy is shown in table 1. Hay fever, nasal congestion, hives and eczema were especially common in comparison with other disturbances.

The family history was positive for allergy in 69.2 per cent and gave a history of migraine in 43 per cent, of asthma in 23 per cent, and of hay fever in 11.5 per cent of the 130 patients.

---

[13] Phillips, E. W., in discussion of Presson, V. G., and Wilson, R. A. Gastro-Intestinal Allergy and Its Sequelae, Southwest. Med. **16:** 8 (Jan.) 1932.

[14] Woltman, H. W. Headaches, M. Clin. North America **8:** 1319 (Jan.) 1925.

[15] Liveing, E. On Migraine and Sick Headache and Some Allied Disorders, London, 1873.

[16] Tileston, Wilder. Migraine in Childhood, Am. J. Dis. Child. **16:** 312 (Nov.) 1918.

[17] Brown, R. C. The Protein of Foodstuffs as a Factor in the Cause of Headache, Wisconsin M. J. **19:** 337 (Dec.) 1920, Protein Poison Theory. Its Application to the Treatment of Headache and Especially Migraine, Brit. M. J. **1:** 155 (Jan. 24) 1925.

[18] Moloney, J. C. Etiology of Migraine, Arch. Neurol. & Psychiat. **19:** 684 (April) 1928.

[19] Brown, T. R. Role of Diet in Etiology and Treatment of Migraine and Other Types of Headache, J. A. M. A. **77:** 1396 (Oct. 29) 1921, Metabolic Studies in Regard to Certain Forms of Arthritis and Also Migraine with the Proper Diet in These Cases, J. A. M. A. **92:** 2191 (June 29) 1929.

[20] Minot, G. R. The Role of a Low Carbohydrate Diet in the Treatment of Migraine and Headache, M. Clin. North America **7:** 715 (Nov.) 1923.

[21] McClure, C. W., and Huntsinger, M. E. Paroxysmal Headache, New England J. Med. **199:** 1312 (Dec. 27) 1928.

[22] Laing, G. H. Migraine Types in Relation to the Gastro-Intestinal Tract, M. Clin. North America **11:** 49 (July) 1927.

[23] Hartsock, C. L. Migraine, J. A. M. A. **89:** 1488 (Oct. 29) 1927.

[24] Stevens, N. C. Endocrine and Fatigue Headaches, New England J. Med. **201:** 801 (Oct. 24) 1929.

Operations of various types, as indicated in table 1, had been performed without relief to headaches. Of these, appendectomy, cholecystectomy and nasal operations were most frequent. With the use of elimination diets, modified by history and skin reactions, good results occurred in 73.1 per cent of this series of 130 patients with headache; failure occurred in 20 per cent; fair results occurred in 6.9 per cent. Of the 109 patients who gave good cooperation, good results occurred in 87 per cent. These results compare with those of Eyermann,[12] who recently reported good results in 69 per cent of a series of 63 patients, and of Balyeat,[9] who recently reported definite results in 88 per cent of 202 cases. Most of my patients had tried other types of therapy for the relief of their symptoms.

An analysis of the patients who obtained only fair results or no results at all is profitable. Of these thirty-five patients, twenty-one gave poor cooperation in following their diets. Good cooperation, however, was given by fourteen patients who failed to obtain results.

Miss R. continues to have headaches in spite of strict adherence to various elimination diets. All types of examinations have been negative. Two ophthalmologists found nothing abnormal in her eyes. She has had long courses of ovarian and pituitary extracts hypodermically, and nonspecific protein therapy has been used—all with no effect. The possibility of a psychologic problem has been considered.

Mrs. B. is undernourished, is nervous, and gives large skin reactions to all types of pollens and animal emanations and many different foods. She has had the uterus and gallbladder removed, but her headaches persist.

Mrs. L. has recurrent headaches, unaffected by various types of elimination diets. She has marked duodenal stasis which indicates pathologic changes in the upper quadrant. Operation has been refused.

Mrs. H. likewise has pathologic changes in the upper part of the abdomen together with a trigeminal type of neuralgia. Elimination diets have failed to produce relief.

Mrs. L. and Mrs. A. H. have severe recurrent migraine, which has not yielded to elimination diets. Repeated duodenal drainage, hypodermics of ovarian and pituitary extracts, intravenous and subcutaneous peptone and psychotherapy have been unavailing in each patient.

Miss C. had extensive nasal surgery before I saw her and complained of great fatigue and nervous exhaustion. Elimination diets were ineffective.

Miss H. had excellent results from the elimination diets for one year. Since then she has apparently developed sensitizations varying from mild to severe ones to practically all foods and at present is fairly free from her symptoms on a restricted elimination diet which maintains her weight and strength.

Mrs. L. and Miss W. have had no relief from the elimination diets and have tried many other diets and forms of medical therapy for many years without relief. Physical and laboratory examinations of these patients by several other internists have been negative. Mrs. R. has large reactions to practically all types of pollen and many foods. A diet free from all allergenic foods has not been possible and the effect of her extensive pollenosis has not been determined. Mrs. C. was not benefited by elimination diets and it was felt that nervous influences were responsible for her migraine.

Miss C. likewise is extremely nervous and introspective. Cholecystectomy had given no relief, and no help was obtained from diet trial over a period of six months.

Mrs. E. has had headaches of the worst type all her life. Pelvic surgery and cholecystectomy had given no help. Elimination diets, duodenal drainage, intravenous peptone, peptone and trypsin by mouth and stool vaccines have been entirely useless.

Thus these patients, who were not helped by elimination diets, were not benefited through other forms of therapy. This again emphasizes the importance of food allergy in the etiology of this malady, especially in view of the fact that 73 per cent of my 130 patients, 69 per cent of those reported by Eyermann[12] and a higher percentage of those recently reported by Balyeat[9] obtained good results from the elimination of allergenic foods.

It is evident that all patients with migraine, as well as those with mild types of headache and migrainous equivalents, must be studied with allergy in mind.

PATHOGENESIS

A localized edema of the cerebral tissues or localized spasms of cerebral blood vessels may be the cause of the migrainous symptoms. Vomiting may be of central origin or may be due to localized allergic disturbances in the gastro-intestinal tract or in the liver itself. The hepatic swelling with associated icterus, which has been reported through the literature in certain patients during attacks of migraine, may be due to such localized allergy in the hepatic tissues.

As localized allergic reactions occur in the cerebral tissues, so they undoubtedly arise in the tissues of the spinal cord and peripheral nerves, causing various nervous symptoms, chief among which is peripheral neuralgia in various parts of the body.

DIAGNOSIS AND TREATMENT

My previous publications[1] have described the method of diagnosis and the use and development of my elimination diets for the determination of food allergies. In brief, certain patients are relieved by the exclusion of those foods to which positive skin reactions or a history of definite food idiosyncrasies exist. However, most adult patients fail to give satisfactory skin reactions to allergenic foods, and in most instances it is advisable to use diet trial, excluding those foods which most frequently produce allergy. For this purpose, my elimination diets have been of increasing value during the last five years.

Table 2.—*Results and Cooperation in One Hundred and Thirty Patients with Headaches from the Use of Elimination Diets*

Cooperation	Number of Cases	Results	Number of Cases	Per Cent
Poor	11	Failure	26	20
Fair	10	Fair	9	6.9
Good	109	Good	95	73.1

Good results demand absolute cooperation of the patient over a period of weeks or months. The slightest break in the diet, especially in the first few weeks, often precipitates migraine. Gradually the individual's tolerance for the offending foods can be determined and, with their continued elimination, desensitization may gradually occur.

It has been my experience that little help can be obtained from any measures other than the exclusion of allergenic foods from the diet in patients with allergic migraine. Occasionally the hypodermic administration of 5 per cent peptone seems to be of help, especially in those patients who have sensitizations to practically all types of food. Peptone by mouth has been disappointing. The possibility of migraine arising from inhalant or bacterial allergy exists, but definite proof of such etiology is not available. Treatment for the relief of anemia, nervousness, indigestion due to various causes, including achylia and deficiency in digestive ferments, and the control of all other pathologic states undoubtedly is of aid in the control of migraine due to food allergy. But without absolute adherence to the prescribed elimination diet, allergic migraine cannot be successfully eradicated.

CONCLUSIONS

1. Food allergy as a frequent cause of migraine has been demonstrated.

2. Of 130 patients, good results with the elimination of allergenic foods occurred in 87 per cent of the 109 patients who gave good cooperation.

3. My elimination diets, modified by positive skin reactions or a history of idiosyncrasies to specific foods, have been effective in the determination and control of the food allergy.

242 Moss Avenue.

Clinical Notes, Suggestions and New Instruments

SILICOSIS IN A TUBERCULOSIS HOSPITAL

Jerome R. Head, M.D., and Samuel H. Rosenblum, M.D
Associate in Surgery, Northwestern University Medical School, and
Resident Physician in Tuberculosis, Cook County
Hospital, Respectively
Chicago

The present paper is a report of a clinical and statistical study of pneumonoconiosis in a general tuberculosis hospital in a district in which the industries do not especially predispose to this condition.

It is well known that silicosis predisposes to tuberculosis and that the tuberculosis mortality among workers in silica dust is from ten to twenty times higher than that of the general population. Britton and Head[1] have recently emphasized the fact that silicosis develops slowly and that frequently many years intervene between the cessation of exposure to the dust and the appearance of symptoms. Not infrequently the first symptoms are those of a superimplanted tuberculosis.

Knowledge of these facts led us to believe that a careful search through a large tuberculosis hospital would reveal many instances of tuberculosis secondary to silicosis and would be valuable in affording some idea of the importance of this condition in the general tuberculosis problem. We expected that in the Chicago area, which like any large city is more or less the center of gravity for a large shifting population, we would encounter many instances in which the exposure had occurred in distant localities and in which many years had elapsed between the cessation of exposure and the development of symptoms.

Table 1.—*Incidence of Silicosis in Five Hundred Cases of Tuberculosis*

Ages	Number of Patients	Cases of Silicosis	Percentage
20 to 30	182	0	0
30 to 40	105	3	3
40 to 50	116	9	8
50 to 60	81	4	5
60 and over	16	1	6

Five hundred male patients, admitted consecutively to the tuberculosis wards of the Cook County Hospital, were carefully questioned. A complete industrial history was taken of each patient from the time he started work until he was admitted to the hospital. Among the 500 patients there were discovered 17 (or 3.4 per cent of the total) who had definite silicosis.

Since silicosis is an occupational disease and one which develops very slowly, it occurs most often in late adult life. Tuberculosis has its highest incidence in the years of adolescence and those closely following. One would expect, therefore, that more of the older tuberculous patients would have silicosis than of the younger. This was found to be the case. Table 1 shows the incidence in the different decades. The average age was 45 years.

There were no instances among those under 30 years of age; of the 318 patients over 30, 5.3 per cent had silicosis, while of those over 40, the percentage was 6.6. The highest incidence, 8 per cent, occurred in the fifth decade.

Table 2 shows the nature, location and duration of the exposure as well as the interval between the cessation of exposure and the onset of symptoms.

Table 2—*Source, Location and Duration of Exposure*

Age	Nature of Work	Duration of Exposure	Free Interval
43	Coal mine in Pennsylvania	1 year	15 years
31	Lead and zinc mines in Missouri	5 years	0
47	Coal mine in Pennsylvania.	10 years	18 years
60	Coal mine in Pennsylvania	20 years	10 years
52	Sandblasting	10 years	0
47	Sandblasting	5 years	10 years
48	Copper mine	1 year	15 years
42	Sandblasting.	1 year	4 years
46	Coal mine in Poland	3 years	7 years
38	Coal mine in Pennsylvania	4 years	18 years
56	Lead, zinc and iron mines	35 years	0
50	Coal mines in Pennsylvania.	10 years	5 years
42	Coal mines in West Virginia	2 years	
	Cleaning dies in foundry	5 years	0
52	Rock heading soft coal mine	2 years	9 years
47	Sand shoveling in foundry.	6 years	6 years
32	Sandblasting	10 years	0
40	Mining	?	?

Mining and sandblasting accounted for all save one of the seventeen cases; twelve of the patients were miners, four sandblasters and one had shoveled sand in a foundry for six years Of the twelve miners, nine had mined coal, two lead and zinc and one copper. Of the nine coal miners, five had worked in the Pennsylvania mines, one in those in West Virginia, one in Poland, for one the location was not stated and one had done rock heading in a soft coal mine for two years

In different parts of the country the origins of the silicosis will be different. It is of particular interest that in the Chicago area such a large percentage of the cases originated in the Pennsylvania coal fields, a smaller percentage in the lead, zinc and copper mines of the West and an even 25 per cent in local industries. Immigrants, especially from the slavic states of central Europe, stop first on the Eastern seaboard, many of them finding work in the Pennsylvania mines. After working there a number of years, many of them seek better conditions and more congenial work in Western cities. Of these, Chicago gets its share. It was often many years after they had reached Chicago that the effects of the dust became manifest.

Only four of the patients developed symptoms while still engaged in the dusty work; two of these were sandblasters and two were lead and zinc miners. In the other twelve there was an average interval between cessation of work and onset of symptoms of 10.75 years, with low and high limits of four and eighteen years, respectively. The average duration of exposure was eight years, with low and high limits of one and thirty-five years, respectively.

The diagnosis of silicosis and tuberculosis is made on three bases: a history of exposure to dust, a characteristic roentgenogram, and the finding of tubercle bacilli in the sputum. All these must be positive, for the roentgenogram of simple silicosis can closely simulate tuberculosis, and some types of tuberculosis can closely simulate silicosis. There are, furthermore, conditions other than tuberculosis which can be confused with pneumonoconiosis.

The history must be investigated with great care. The exposure may have been many years in the past and of only

---

From the tuberculosis wards of the Cook County Hospital.

[1] Britton, J. A., and Head, J. R.: Pneumonoconiosis, J. A. M. A. **96**: 1938-1939 (June 6) 1931.

short duration. The patient may have forgotten it or may not have recognized that it was an exposure. In the face of a characteristic roentgenogram, one should go over and over each period of the patient's industrial history. Pancoast cites an instance of a positive roentgenogram in the case of a tap dancer. No history of exposure could be determined until the patient volunteered the information that he had scattered sand on the stage before each performance. We recently saw a patient whose lungs were marked by silica just as plainly as if the word were written there and yet who swore that he had never done anything save farming and butter making.

The roentgenogram is of first importance in the diagnosis. First stage silicosis, characterized merely by an increase in the hilus shadows, cannot be recognized unless the history of exposure is known, and even then it is a more or less doubtful entity. Second stage disease, on the other hand, gives one of the most characteristic of roentgenograms. The miliary bronchial nodules radiating from the hilus into the lung fields, affecting principally the middle areas and sparing the apexes and bases, are almost diagnostic. The picture can be simulated only by miliary tuberculosis, passive congestion, miliary carcinosis and some rare fungous infections.

In the third stage there is a coalescence of the miliary nodules with the formation of large areas of increased density often affecting a whole lobe. This stage closely simulates fibroid tuberculosis, and it is difficult to say in any given instance whether or not tuberculosis is also present. Cavities or a pleural effusion practically always mean tuberculosis, and fever and systemic symptoms suggest it strongly. The diagnosis can be confirmed only by the finding of tubercle bacilli in the sputum, and in this type of tuberculosis they are often difficult to find.

In the present series there is the probability that some of the patients had pneumonoconiosis uncomplicated by tuberculosis and were in the hospital under a mistaken diagnosis. Examination of the roentgenograms and clinical records suggests strongly that this was the case in at least two instances. The sputum was positive in all save five cases. In three of the five, the roentgenograms showed obvious tuberculosis with cavitation. In fifteen of the seventeen one can say definitely that tuberculosis was present. In two it is probable that there was no tuberculosis.

If a patient has silicosis without tuberculosis, he should not be allowed in a tuberculosis hospital, much less confined there. No other group of individuals is so susceptible to the disease. This fact should be borne in mind and pains taken to distinguish the two conditions. As has been said before, this is often difficult; for the roentgenographic signs in third stage silicosis are practically identical with those of certain types of tuberculosis. The former condition, however, rarely causes fever or loss of weight and the physical signs are often absent or of a type to suggest bronchitis rather than tuberculosis. Constant post-ptussal râles over one or both apexes suggest tuberculosis. It is generally felt that pleurisy with effusion occurring in these cases is of tuberculous origin. Cavitation does not occur in uncomplicated silicosis and when present is practically certain evidence of tuberculosis. In many cases in the last analysis the presence or absence of tuberculosis must be determined by the examination of the sputum. In these cases, especially if there is no cavitation, tubercle bacilli are not abundant and often must be sought for repeatedly and by culture or animal inoculation of the sputum.

SUMMARY

1. Seventeen cases of silicosis or silicosis and tuberculosis, 3.7 per cent of the total, were found among 500 male patients admitted consecutively to the tuberculosis wards of the Cook County Hospital in Chicago.

2. Fifteen of these had silicosis and tuberculosis. In two a definite diagnosis of tuberculosis could not be established.

3. The condition, as was expected, was more frequent among the older patients. It was found in no patients under 30, in 3 per cent of those between 30 and 40, in 8 per cent of those between 40 and 50, in 5 per cent of those between 50 and 60, and in 6 per cent of those over 60.

4. In only 25 per cent of the cases was the exposure incurred in Chicago or its vicinity. In the majority of instances it was in mining, principally in the coal mines of Pennsylvania and West Virginia and in the metal mines of the West.

5. In all save four cases there was a free interval between the cessation of exposure and the appearance of symptoms. The average interval was 10.75 years. The low and high limits were four and eighteen years, respectively.

104 South Michigan Avenue—3245 Fullerton Avenue.

Council on Physical Therapy

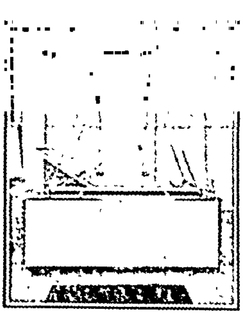
The Council on Physical Therapy of the American Medical Association has authorized publication of the following report.

H. A. Carter, Secretary.

LANG HOSPITAL INSULATED PROLONGED FLOWING BATH WITH HAMMOCK ACCEPTABLE

The Lang Hospital Insulated Prolonged Flowing Bath with Hammock is manufactured by William J. Lang of Chicago and is designed for general hydrotherapy treatments.

The sides and the bottom of the bath are made of two thicknesses of 1 inch veneer and two thicknesses of compressed cork with an air space between the cork thicknesses. The inner lining, capping and corners are of stainless steel. The four outer sides are faced with white "Bakelite." The bath is supported by four marble blocks. This insulated construction is provided for the purpose of maintaining the temperature of the water. The inside dimensions of the standard equipment are: length, 6 feet 6 inches; width, 2 feet 6 inches, and depth, 2 feet 4 inches. However, by special order, the bath can be constructed to any desired dimensions.



Lang Hospital Insulated Prolonged Flowing Bath with Hammock.

The bath is equipped with a 3 inch combination waste and overflow, designed to allow an 8 inch variation in the depth of the water. All metal in connection with the waste and supply for the bath is brass, chromium plated.

A Powers Thermostatic Water Mixer designed to control the mixing of hot and cold water thermostatically and deliver a constant supply of warm water is a major part of the equipment.

The firm claims that the temperature of the water mixture remains so constant that it will not vary to within 0.5 degree F., plus or minus, regardless of temperature or pressure changes in the hot or cold water supply lines. There are never sudden "shots" of hot or cold water. Failure of either supply completely shuts off the delivery flow. Restricting the delivery flow has slight effect on the delivery temperature. The temperature range of the mixer is from cold water to 115 F.

The hammock is constructed of 1¼ inch angle iron with adjustable shoulder and head rests, brazed on all joints. Steelcane is welded between the frame, shoulder and head rests. The foot rest is made of white ash and has an 18 inch variation of adjustment. Rubber bumpers measuring 2½ by 3¼ inches are placed on the four corners of the hammock to prevent it from defacing the sides of the bath; also they act as rests when the hammock is lowered to the bottom of the bath. All metal parts of the hammock are thoroughly galvanized.

The lowering and raising device of the hammock is constructed of 3 inch galvanized steel posts and angle iron. The cables, swivel joints and unlocking devices are of bronze. The lowering and raising device is controlled by one lever, which holds the hammock and the patient at any desired position without locking of the lever.

An adjustable tray in connection with this bath is connected to the side of the bath and may be set at any desired height or position, allowing the patient to eat or read while under treatment. The shipping weight is about 400 pounds.

The Council declares the Lang Hospital Insulated Prolonged Flowing Bath with Hammock eligible for inclusion in the Council's list of accepted devices.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

CARNATION MALTED MILK

Manufacturer.—Carnation Company, Milwaukee.

Description.—A dried malted milk in tins.

Manufacture.—The product is prepared from whole milk, barley malt and malted wheat flour.

Coarsely ground barley malt, water and wheat flour are mixed in a nickel mash kettle equipped with an agitator and steam coils. A definite mashing temperature is maintained until the starch is converted to soluble carbohydrates relatively high in maltose and low in dextrins. The solid material is separated from the liquid in a sieving kettle with a perforated false bottom. The liquid is flowed over a fine mesh screen to remove coarse insoluble materials and further clarified by means of mechanical clarifiers. The clarified liquid containing protein and other substances in suspension is tested for total solids to determine the quantity of whole milk to be added to give the finished product a milk-fat content of not less than 8 per cent. Definite quantities of the liquid extract or "wort" and pasteurized whole milk are mixed, maintained at 54-57 C. for several hours and concentrated in "vacuum" to a desired density. (The absence of air tends to protect the natural vitamins present.) The condensed mixture is homogenized, cooled, and dried in a revolving drum "vacuum" drier in which the concentrated material is pumped against revolving steam heated drums, from which it is removed in dry sheets by knives. The dry sheets are broken in small pieces, discharged from the "vacuum chamber," cooled, finely ground and packed in tins with both a friction and a screw cover.

The equipment used is of pure nickel, glass-lined steel or tinned copper and is cleaned daily. The milk and raw materials are subjected to regular laboratory inspection and examination.

Analysis (submitted by manufacturer).—

	per cent
Moisture	2.7
Ash	2.3
Fat	8.4
Protein (N × 6.25)	12.8
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	73.5
Chloride (Cl)	0.39
Sodium (Na)	0.42
Potassium (K)	0.37
Calcium (Ca)	0.25

Calories.—4.2 per gram; 119 per ounce

Claims of Manufacturer.—A malted milk for the preparation of table beverages.

HOLSUM SLICED BREAD

Manufacturer.—Miller-Patton Baking Company, Rockford, Ill.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p 817); prepared from patent flour, water, yeast, malt syrup, lard, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, salt, sucrose, powdered skim milk and shortening.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	35.1
Ash	2.0
Fat	2.6
Protein (N × 6.25)	10.0
Carbohydrates other than crude fiber (by difference)	50.0
Crude fiber	0.3

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

CROWN BEST PATENT FLOUR—UNBLEACHED

Manufacturer.—Crown Mills, Portland, Ore.

Description.—An "all purpose" short patent flour milled from a blend of hard white wheat and hard red wheat; for home baking; not bleached.

Manufacture.—A blend of hard white wheat and hard red wheat is cleaned, washed, tempered, and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and automatically packed in cotton bags.

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.5
Ash	0.36
Fat (ether extraction method)	1.2
Protein (N × 5.7)	10.4
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	74.1

Calories.—3.5 per gram, 99 per ounce

Claims of Manufacturer.—An "all purpose" short patent flour for home baking.

MANBECK'S BONNIE BREAD

Manufacturer.—Manbeck Baking Company, Harrisburg, Pa.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, sweetened condensed whole milk, vegetable shortening, salt, sucrose, yeast, malt syrup and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.7
Ash	1.6
Fat	2.7
Protein (N × 6.25)	9.2
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	49.5

Calories.—2.6 per gram, 74 per ounce

Claims of Manufacturer.—A bread of good quality.

(a) MANOWIS BRAND CORN SYRUP WITH CANE FLAVOR
(b) PUCKETT'S GOLDEN CORN SYRUP WITH CANE FLAVOR
(c) BUTTER CUP BRAND CORN SYRUP WITH CANE FLAVOR
(d) GOLD BOND BRAND CORN SYRUP WITH CANE FLAVOR
(e) GOLD BOND BRAND CORN SYRUP WITH CANE FLAVOR
(f) CANEW BRAND GOLDEN SYRUP WITH CANE FLAVOR
(g) OZARK BEAUTY BRAND GOLDEN CORN SYRUP WITH CANE FLAVOR
(h) BLUE RIBBON BRAND GOLDEN CORN SYRUP WITH CANE FLAVOR
(i) BYERLY TROPHY BRAND CORN SYRUP WITH CANE FLAVOR

Respective Distributors.—(*a*) Plumb & Nelson Company, Manitowoc, Wis.

(*b*) Puckett's Cash Stores, Sayre, Okla.

(*c*) Tindall, Kolbe & McDowell, Milwaukee.

(*d*) Milburn-Johnston Grocery Company, Kensett, Ark.

(*e*) Harrison Grocery Company, Harrison, Ark.

(*f*) New York Store Mercantile Company, Cairo, Ill

(*g*) Pocahontas Grocery Company, Pocahontas, Ark.

(*h*) Woodward Wholesale Grocery Company, Woodward, Okla.

(*i*) J. A. Byerly Company, Inc., Owosso, Mich.

Packer.—D. B. Scully Syrup Company, Chicago.

Description.—These table syrups are the same product as Banner Blue Corn Syrup with Cane Flavor (THE JOURNAL, March 5, 1932, p. 817); corn syrup base (85 per cent) with refiners' syrup (15 per cent).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 10, 1932

THE PRIVATE PRACTITIONER AND PREVENTIVE MEDICINE

The physician of the future must be increasingly a practitioner of preventive medicine. Obviously this involves new relationships to the public and to the health official. Under various forms of state practice, problems have arisen which were discussed by Sir George Newman, K.C.B., M.D., F.R.C.P., chief medical officer of the Ministry of Health, who in his capacity as president addressed the Section of Public Health at the centenary meeting of the British Medical Association.[1] He pointed out that in no previous age has there been such growth of the conception of preventive medicine as in the present era, paying tribute to Bright, Addison, Hodgkin, Gull, Jenner, Osler, Allbutt and Barlow for the constructive service that has been rendered in the great march of preventive medicine by medical practitioners. "It is they," he said, "who have made the bricks, found the road, explored the facts, carried on the fight, and educated the people in a way of life." He elucidated further: "They searched into the circumstances of disease and related it to environment; they introduced medical notification and hospital isolation; by their investigation of factory conditions they initiated industrial welfare; they stemmed the rising tide of spirit drinking; they began the reformation of midwifery and were the first to attack the problems of child sickness and mortality; they established dispensaries and staffed the new hospitals; their systematic support of vaccination instituted the practice of immunity; and their scientific observation was the beginning of British epidemiology."

Sir George Newman then described the practitioner as a medical officer, pointing out how British physicians were responsible for the attention paid to preventive medicine in the Poor Law of 1834 and how they were the first to sponsor the Royal Commission of 1869. This commission first proposed a ministry of health, established fifty years later. He brought his historical review down to date through a consideration of the practitioner in insurance practice under the insurance act of 1911. What Sir George Newman had to say about the insurance act should be of interest to American physicians and, indeed, to American patients. He pointed out that "15,000 medical practitioners have voluntarily joined in a cooperative scheme of the profession, the friendly societies and the state for the medical supervision of fifteen million people, more than a third of the whole population, inclusive of the wage earners of the country."

Here is a significant development. These practitioners represent three sevenths of the number of physicians who are members of the British Medical Association. Translated into American terms, it would mean 45,000 physicians in this country affiliated with such a scheme if one should be established in the United States. And if the same proportion of our population were to be participants in it, there would be forty million beneficiaries.

Sir George Newman, as a government official, sees in the British health insurance plan little but benefit to the public and the profession. There are, however, those who differ with him in this opinion. For example, he said that these insured persons come to their chosen physicians frequently and undeterred at the beginning of sickness, when disease may be most effectually controlled. It is undoubtedly true that they come frequently and undeterred, as may easily be understood when it is realized that their sick benefits are paid for in advance and that it is but human to desire value received for money paid. Perhaps it may also be conceded that they come at the beginning of sickness, when disease may be most effectually controlled. Yet American investigators, who may be presumed to approach their investigation without bias, regard as the most startling fact about the vital statistics of insurance countries the steady and fairly rapid rate of increase in the number of days the average person is sick annually and the continuously increasing duration of such sickness.[2]

Nor does Sir Arthur Newsholme fully support the views of Sir George Newman as to the value of health insurance in preventive medicine. In 1920 Newsholme[3] said: "The chief justification of a national system of insurance against sickness is that it shall be an active auxiliary in the prevention of disease. At present it is doubtful whether any national system of sickness insurance has been so. It has only been so to the extent to which the medical treatment of the masses of the population has been improved by it; and no such improvement can be claimed for British insurance." In 1927 he did not seem to have changed his mind a great deal, for then he[4] pointed out that "the demands on insurance funds and on the expenses of official and voluntary child health work would be reduced to an almost incredible extent if the people were educated to practice the art of hygienic living." After sixteen years, health insurance had not, apparently, been a potent force in public health education in Great Britain.

---

[1] Brit. M. J. 2:190 (July 30) 1932.

[2] Simons, A. M., and Sinai, Nathan: The Way of Health Insurance, University of Chicago Press, 1932, p. 157.

[3] Newsholme, Sir Arthur: Public Health and Insurance: American Addresses, Baltimore, Johns Hopkins Press, 1920, p. 109.

[4] Newsholme, Sir Arthur: Health Problems in Organized Society, Westchester, P. S. King & Son, Ltd., 1927, p. 160.

These points of view are incompatible unless there exist elements in insurance practice which preclude the effective application of the principles of preventive medicine. Simons and Sinai[5] point out that the value of continuous records kept by insurance practitioners, which has been much stressed as an important point in favor of insurance practice, must be discounted because "examination of these [records] is sufficient to show that in their present form they are too indefinite and scanty to be of any great value as a guide to subsequent treatment."[6] Nevertheless, says Newman, "I have no doubt that health insurance is one of the most effective instruments of preventive medicine which we possess."

Sir George Newman points out the advantages of social insurance to the practitioner but does not speak of the disadvantages which Simons and Sinai[7] list: "(1) restrictions on treatment; (2) restrictions on prescribing; (3) free choice of doctor; (4) professional secrecy; (5) the required records, or 'red tape'; (6) entrance to insurance practice; (7) clinics; (8) certification." No doubt the British system[8] is superior to other systems in that the medical profession, through the British Medical Association, has a greater voice in the management of insurance practice than has the medical profession in other countries, notably Germany, where bitter criticism of the system is rampant.[9]

Medical practice in America today includes the activities of hospitals, clinics, medical schools and public health departments. Scientific research has opened new vistas for the prevention of disease, and increased costs of medical care, including prevention, diagnosis and treatment, are inevitable. That there will be some movement to solve the economic problem thus created is to be expected and that the movement will be sponsored by social workers and humanitarians is also to be anticipated. The implication that only a socialized attack on the problem of medical costs will solve the problem need not, however, be accepted by the medical profession.

Simons and Sinai[10] point out that the British Medical Association was not consulted in the original drafting of the insurance act and that it cost its treasury £30,000 in addition to other large special voluntary funds raised by the association to get a voice in the determination of conditions under which physicians should practice. In France the medical profession took a timely stand and succeeded in having a determining voice in the establishment of the French system. In our country, economists, sociologists, foundations and such large commercial interests as the insurance companies are taking an active part in influencing public opinion. Fortunately there is still time for the medical profession to take its proper place in the determination of how the problems of medical practice shall be solved. That determination need not and probably will not be a selfish one. Any proposal relating to health depends on medical service. Without adequate provisions for delivering a high grade of medical service the profession suffers, but the public, that is, the patient, suffers still more. Sir George Newman fails to point out what Simons and Sinai[11] regard as the fundamental defect in existing health insurance systems; namely, combining the work of the practicing physician with that of the examiner or inspector on whose judgment cash benefits are awarded. This conflict disturbs the relationship of faith and confidence between patient and physician, which students of medical practice have from the beginning regarded as fundamental. While the doctor is expected to act as an inspector, he cannot function to fullest advantage either in treatment or in prevention of disease. In the light of other opinions, Sir George Newman has not made out a very convincing case for health insurance as a public health measure, at least on the British plan. It seems, indeed, to have developed merely a cheap method of satisfying underprivileged workers with a less than adequate medical service.

THE PATHOGENESIS OF ADENOMATOUS (NODULAR) GOITER

Adenomas of the thyroid have for long been considered, largely from their morphologic similarity to adenomas elsewhere, as true benign neoplasms. Their origin has generally been attributed to the persistence of embryonal rests, even when present in the adult gland. This idea has persisted in spite of the absence of any actual convincing proof and has contributed to the confusion and difficulties so often encountered in any attempt to correlate the pathologic and the clinical pictures.

Experimental production of nodular goiter similar to these so-called adenomas has been reported recently by Cole and Womack[1] of the department of surgery at the Washington University School of Medicine. These workers studied the results of various factors, mostly chemical and infectious, which they had previously shown produce definite changes in the thyroid of dogs.

---

[5] The Way of Health Insurance, p. 150.

[6] Brend, W. A.: Health and the State, 1917, p. 259.

[7] The Way of Health Insurance, p. 91.

[8] The Way of Health Insurance, pp. 59-78.

[9] Liek, E.: Sociale Versicherung und Volkgesundheit, Schweiz. med. Wchnschr. **60**: 466 (May 17) 1930. Pik, Gottlieb: Der Krankenversicherungsarzt als Problem, Zentralbl. f. Reichsversicherung u. Reichsversorgung, Oct. 1, 1930, p. 385. Cushing, Harvey: The Life of Sir William Osler **1**: 346.

[10] The Way of Health Insurance, p. 81.

[11] The Way of Health Insurance, p. 58.

[1] Cole, W. H., and Womack, N. A.: Normal and Pathologic Repair in the Thyroid Gland, Arch. Surg. **23**: 466 (Sept.) 1931.

They emphasize, first of all, that increases in the functional activity of the gland are produced by these stimulating factors and that they are usually associated with definite morphologic changes. These stimuli, if intense, may cause desquamative changes within a few hours. Milder stimulation over a relatively longer period of time may, however, produce hyperplastic changes similar to those seen in exophthalmic goiter. Cessation of the stimulus leads to involution in a manner similar to that produced by iodine, but in either case replacement by fibrous tissue becomes a prominent feature of the process.

Repetition of this physiologic cycle of hyperplasia and involution led to the production of adenomas. It was found that fibrosis played the most important part in its development, for the location and occurrence of the nodules apparently depended on the amount and location of the scarring. Thus, the mechanism of their production was probably the encircling of a group of acini by fibrous tissue with subsequent cycles of hyperplasia and involution. The most frequent nodular changes were seen when a profuse ingrowth of scar tissue was achieved, as by the injection of a solution of trypsin into the inferior thyroid artery or by other methods. Some of these nodules resembled in great detail the so-called fetal adenoma. That such adenomas were in fact due to the experiment was shown by their absence in control biopsies of the gland in each case. Moreover, sections of the thyroid gland of several hundred normal dogs from the vicinity of St. Louis were examined over several years and in no instance was an adenoma encountered.

Clinical observations have, in general, confirmed this functional explanation of the origin of these nodules. Rienhoff and Lewis[2] have had the opportunity of comparing sections of human hyperplastic glands before and after iodine therapy and have noted the abundant development of the fibrosis and adenoma formation as a part of the involution from iodine. Both Dunhill[3] and Hertzler[4] have also shown that these so-called adenomas develop during the course of involution of an actively hyperplastic gland.

From these investigations it would seem that nothing as mysterious as embryonic rests needs to be invoked to explain nodular goiter. Their pathogenesis would seem to be merely part of the functional changes in the thyroid, physiologic, no doubt, though probably exerted only in response to various kinds of stimuli, themselves largely pathologic. Moreover, since their pathogenesis is similar they should present no greater problem in treatment than do ordinary cases of hyperplastic goiter, an idea which, in spite of some dispute, is beginning to be generally held on the basis of clinical study alone. The possible relationship of adenomas to the formation of carcinoma of the thyroid is not yet clearly understood.

DIET IN NEPHRITIS

The attitude of clinicians toward the problem of the protein intake in certain types of nephritis has been fundamentally altered in recent years. There was a time, not long ago, when the doctrine of "sparing the damaged kidneys" was rigorously applied in the dietary regimen of the patients. Realizing that the end-products of protein catabolism leave the body normally in the secretion of the kidneys, writers on clinical dietetics argued, with considerable logic, that a decrease in the intake of the food components involved ought to be beneficial to the nephritic patient. As a consequence, diets poor in protein were widely recommended. This attitude seemed to be further warranted by the allegation that high protein feeding is provocative of nephritis. Thus it has come about that many patients were experiencing a marked loss of protein not only because of the inadequate intake but also as a consequence of concomitant extensive albuminuria. Ultimately the plasma proteins may thus become depleted, with a resultant edema comparable to the now familiar nutritional edema.

The fact that nephritis is essentially a wasting disease is sometimes not fully appreciated, says Harrop,[1] particularly in patients who suffer from edema, which often gives them a fictitious appearance of good nutrition. He adds that persons with moderately advanced chronic nephritis are seldom overweight if the weight of the edema that may be present is disregarded. On the contrary, they are almost invariably underweight. That is why it becomes so important to supply an adequate caloric intake to spare nitrogenous metabolism as well as to furnish sufficient energy. Peters has accordingly pointed out that, if the caloric intake is deficient, more protein will be burned; if the protein intake sinks below a certain level, "all the calories in the world will not prevent wasting."

The danger of protein restriction—which has been termed a two-edged weapon—is becoming better recognized. As McLester[2] has remarked, protein destruction continues at all times, and the resulting nitrogenous waste products must pass through the kidneys, no matter how restricted the diet. Protein restriction cannot prevent this. Chronic nephritis often becomes a disease prolonged over months and years; hence the patient's strength must be conserved over long periods. The implications of this were stressed at the annual meeting of the Association of American Physicians,[3] held at Atlantic City. McCann and Kentmann of Rochester, N. Y., who have recently made observations on patients showing various manifestations of Bright's disease, have reached the conclusion that as much as 80 Gm. of protein may be given daily without adverse effects even when hemorrhagic symptoms occur. The urea clearance was, if anything, improved by reasonably liberal diets; and the hematuria was not aggravated. Van Slyke, of the Rockefeller Institute, likewise encouraged the use of generous protein feeding in hemorrhagic nephritis. As he expressed his views, at the present time there is no justification in keeping the proteins low in the diet of nephritic patients because of their nephritis. He remarked that often the most comfortable patients were "those who had the good fortune to escape being dieted." As a general rule a fairly liberal diet should be permitted, to maintain the patient's strength and vigor for the longest possible period. The body as a whole, as well as the kidneys, must be considered. So long as the food intake is kept within the digestive capacity of the patient and urea clearance is not aggravated, only good can result. There are many factors besides protein that need consideration in the management of nephritis.

---

[2] Rienhoff, W. F., Jr., and Lewis, Dean: Relation of Hyperthyroidism to Benign Tumors of the Thyroid Gland, Arch. Surg. **16**: 79 (Jan.) 1928.

[3] Dunhill, T. P.: Toxic Goiter, Brit. J. Surg. **17**: 424 (Jan.) 1928.

[4] Hertzler, A. E.: Pathogenesis of Goiter Considered as One Continuous Disease Process, Arch. Surg. **16**: 61 (Jan.) 1928.

[1] Harrop, G. A., Jr.: Diet in Disease, Philadelphia, P. Blakiston's Son & Co., 1930.

[2] McLeste [illegible] l Diet in Health and Disease, Philadelphia, [illegible] 1931.

[3] Society [illegible] **99**: 66 (July 2) 1932.

Current Comment

GROWTH AFTER REPRODUCTION

Reproduction in the mammal does not necessarily represent a loss of material to the maternal organism; to the contrary, the observation is commonly made that after the completion of one or more reproductive cycles there is a tendency to an increase in body weight. An extensive study of the influence of reproduction on growth in the mouse has been made and the results have been recently reported by Agduhr.[1] Whereas the body weight of the virgin females of this species is less than that of the males at a given age, the size of the females increases with progressive pregnancies until it surpasses that of the male. This augmentation in body weight of the individual is due not only to the increase in adipose tissue but also to the growth of organs. The liver, lungs, kidneys and heart increased in size in the experimental group of females, which differed from the control animals only in having given birth to several litters of young. In the skeleton, reproduction brings about an increase in length and volume of bone in spite of the fact that there occurs a marked decalcification as a consequence of lactation. In this instance, again, there has been demonstrated a persistence of the growth of the organic portion of the bones under conditions that are unfavorable to the mineralization of this tissue. That the increase in size after repeated gravidities is probably influenced by the endocrine glands is suggested by the augmented size of the hypophysis, the thyroid and the parathyroids. One series of animals was given large amounts of viosterol each day. With this dietary change there was a decrease in the body weight of the virgin females, whereas reproduction increased the body weight in proportion to the number of pregnancies. In spite of the decalcifying action of large doses of viosterol, the bones increased in size with recurring reproductive cycles. These studies offer further cogent evidence of the pronounced amplifying effects of reproduction on the female body. One may view these changes as an overcompensation, a phenomenon more or less common throughout nature.

ALLERGY AND SPECIFIC HYPERSENSITIVENESS

Use determines the meaning of words. Through changing use, the meaning of a word may change. Regardless of etymology and of former meanings, the words anaphylaxis, allergy and, in their restricted or immunologic sense, hypersensitiveness, hypersusceptibility and idiosyncrasy are now used more and more as synonyms. Sensitization also is sometimes used in the same general sense. The author of a widely used textbook discusses all the phenomena indicated by these words under the general heading of hypersensitiveness. In recent articles by an investigator, sensitization is used as practically synonymous with anaphylaxis. The other day a popular magazine said that hay fever, asthma, hives and certain forms of food sensitivity are all forms of allergy. In the periodical literature and speech of the day, the words in question are used more or less interchangeably. Usage so far has not given to any of these words a definitely restricted or special meaning that has been accepted generally. Perhaps there is a tendency to use anaphylaxis in discussing the most acute and violent manifestations of specific hypersensitiveness, especially in animal experimentation. The general tendency to use these words as at least partial if not perfect synonyms and as conveying no distinctions of fundamental significance is in full harmony with present scientific conceptions of the essential nature of the phenomena described by the words. As research progresses, it becomes established more and more conclusively that in the various forms of hypersensitiveness in man there is concerned a mechanism of the same general type; namely, antigen-antibody reaction in a specifically sensitized or partially immunized organism. By the previous introduction of the antigen, or sensitization, the reactivity of the organism has been altered, and hence the appropriateness of the word allergy (changed reaction), the general use of which seems to be growing. It will be remembered that the unitary view of the mechanism of hypersensitiveness has been opposed because it was held that antigens are proteins and that hypersensitiveness may be caused by nonprotein substances. Now it is known not only that nonproteins, such as carbohydrates, may be antigenic but also that so-called simple chemicals may form antigenic combinations with proteins. Another obstacle to the unitary view has been the difficulty of explaining how the organism is sensitized in spontaneous hypersensitiveness, in the vast majority of the cases of which there seemed to be no obvious clue to any previous introduction of the specific antigen. But it is now known that various antigens easily may enter the body as such through the digestive and respiratory tracts and perhaps in other ways, in both health and disease, and there is no longer any difficulty in explaining natural sensitization. It has been found also that extremely minute quantities of antigen may sensitize. Perhaps the rôle of the hereditary factor in certain forms of hypersensitiveness consists in the development in the tissues of special tendencies to respond to antigens. Enough has been said to illustrate the drift both in scientific investigation and in the usage of names to accept the various manifestations of hypersensitiveness as based essentially on the same kind of immunologic mechanism.

---

[1] Agduhr, E.: Upsala lakaref. förh. **38:** 1, 1932.

OSTEITIS DEFORMANS

Since the first description of osteitis deformans by Sir James Paget of London, in 1876, more than five hundred cases have been recorded in medical literature. At present the x-rays afford almost the only means of detecting the disease in its early stages. Accordingly a recent writer has remarked that with the increasing use of roentgen examinations it appears reasonable that the incidence of the disease will probably be found to be still greater. Certain features of it indicate that there is doubtless a serious disturbance in the metabolism of some of the inorganic elements in the body. Several investigators have recorded a retention of calcium, magnesium and phosphorus and a loss of sulphur in cases of osteitis deformans; but such facts have not yet found widespread recognition in discussions of what is by no means a rare malady. In an investigation by Rabinowitch[1] at the Montreal General Hospital a new, carefully analyzed instance of the upset in the mineral metabolism has been brought to notice. Referring to the general behavior of the inorganic nutrients, Rabinowitch remarks that it would appear that the metabolism of sodium, potassium and chlorine differs from that of other elements; they not only play a small part in the formation of bone but also differ from the other elements in that the body appears to be able readily to adjust itself to any tendencies toward their deficiencies, though they may not always be interchangeable and, in some of their functions, may actually be antagonistic; the "law of the minimum," he adds, appears to be able to assert itself readily. In Rabinowitch's case the patient was practically in equilibrium with respect to sodium, potassium and chlorine. The lack of an effective defensive mechanism against loss of an insufficient supply of calcium, magnesium and phosphorus was shown by the positive balance exhibited for these elements. The basal metabolic rate was normal, as in other cases; hence the involvement of the thyroids in the etiology of osteitis deformans is probably excluded. Other aspects of the study tend to exclude the parathyroids as a cause. Hyposuprarenalism and hypersuprarenalism are also unlikely in the light of the clinical picture and laboratory data. Rabinowitch ventures the guess that osteitis deformans belongs to the so-called metabolic diseases rather than to the infectious disorders. The time is approaching when more sufficiently careful studies will help to solve the baffling problem of etiology.

---

[1] *Rabinowitch, I. M.:* Metabolic Studies in a Case of Osteitis Deformans, J. Nutrition **5:** 325 (July) 1932.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m., over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

September 12. Food and Food Advertising.
September 14. Cancer of the Bowel.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:45 to 11 over Station WBBM.

The subject for the week is as follows:

September 17. Children Who Might Live.

This schedule is based on Chicago daylight saving time, one hour faster than central standard time.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Society News.—The county medical societies of Lawrence and Randolph were addressed in joint session in July by Drs. John C. Hughes, Hoxie, on treatment of diabetes, and Horace R. McCarroll, typhoid.——Dr. Sidney J. Wolfermann, Fort Smith, addressed the Crawford Medical Society in Van Buren, July 26, on the colon.

CALIFORNIA

Child Development Program.—The first county-wide program in child development work in the state, particularly adapted to farm children, will be projected in Santa Cruz County in a series of meetings, beginning September 12, according to a recent announcement. The general purpose of the conferences is to lay plans for the coordination of all the work in the county pertaining to child development and parent education, it was said. Exhibits and demonstrations will be features of the meetings, at which the chairman of the farm home department, College of Agriculture, University of California, will preside.

Changes in Health Officers.—Dr. Frank M. Lawson, Willows, has been appointed health officer of Glenn County, succeeding the late Dr. Samuel Iglick. Dr. Thomas H. Brown succeeds Dr. Iglick as health officer of Orland. Dr. David M. Kindopp replaces the late Dr. Charles J. Durand as health officer of Colfax. Dr. Kindopp is also health officer of Placer County. Dr. Louis L. Robinson has been appointed health officer of the recently incorporated city of Fairfax. The city of Delano, in Kern County, has transferred its public health work to the Kern County Health Department, of which Dr. Joseph Smith is health officer. Mr. A. Ackerman served as health officer of Delano for many years.

License Revoked—Physicians Placed on Probation.—The license of Dr. Robert H. MacLauchlan, San Francisco, was revoked, July 14, by the state board of medical examiners for violation of probation. Dr. MacLauchlan was placed on probation, July 9, 1931, when his license was restored; it had been suspended, Oct. 30, 1930, for aiding and abetting an unlicensed practitioner (The Journal, Aug. 8, 1931, p. 395). The following physicians were placed on probation for the periods indicated, after hearings based on record of conviction or plea of guilty in federal court in connection with veterans' bureau claims: Isaac Alexander, Oakland, five years; Reo B. Armitstead, Ventura, one year; William E. Glaeser, San Francisco, one year; Edward Purcell, one year; Fred H. Van Tassell, five years, Oakland, and John R. Vasko, Alameda, three years. Dr. Filiberto A. Bonaventura, Santa Rosa, was placed on probation for three years, without narcotic privileges, for narcotic violation.

FLORIDA

Mosquito Survey.—What is described as the first investigation of its kind in Florida was begun, August 22, when a group of public health officials started a survey into the mosquito-malaria situation in the state, newspapers reported. The survey began at Tampa, and will continue south to Fort Myers, across the lower Everglades to Miami, then north to West Palm Beach, again into the Everglades area and north to Orlando. Included in the group making the survey are Dr. Mark F. Boyd, Tallahassee, of the Rockefeller Foundation; Dr. Thomas H. D. Griffitts, Albany, Ga., of the U. S. Public Health Service, and Dr. Henry Hanson, state health officer.

GEORGIA

Hospital News.—The Georgia Hospital Association was reorganized at a meeting in Atlanta, July 28. Miss Annie B. Feebeck was elected president, and Mr. George R. Burt, executive secretary.

Society News.—Dr. Henry R. Donaldson addressed the Fulton County Medical Society, Atlanta, September 1, on "The Functionless Gallbladder." Dr. Charles B. Upshaw gave a clinical talk on "Conservative Treatment of Eclampsia."——Dr. Richard B. Wilson, Atlanta, presented a paper on syphilis of the nervous system at the meeting of the society, August 18. ——Dr. Wilborn A. Upchurch, Atlanta, recently addressed the Eighth District Medical Society at Madison, on prostatic resection.

IDAHO

Hospital News.—A twenty-bed hospital was recently opened at St. Anthony, by Dr. Thomas A. Ellison.——Dr. William E. Waldrop, Parma, has been appointed commandant of the Idaho Soldiers' Home, Boise.

State Medical Meeting at Pocatello.—The fortieth annual session of the Idaho State Medical Association will be held at Pocatello, September 16-17, under the presidency of Dr. Joseph Nelson Davis, Kimberly. The following speakers will be included on the program:

Dr. Caroline McGill, Butte, Mont., "Menorrhagia" and "Tissue Diagnosis and the General Surgeon."
Dr. William Dock, San Francisco, "Treatment of Cardiac Irregularity" and "Suggestions as to Cause and Treatment of Chronic Arthritis."
Dr. Frederick L. Reichert, San Francisco, "Interruption of Sympathetic Pathways for Relief of Pain in the Extremities" and "Neuralgia of Certain Sensory and Sympathetic Nerves."
Dr. Platt W. Covington of the Rockefeller Foundation, Salt Lake City, Utah, "State Health Departments."
Dr. Lyle B. Kingery, Portland, Ore., "Ringworm Infection, Clinical Types, Diagnosis and Treatment."
Dr. Dorrell G. Dickerson, Seattle, "Migraine" and "Brain Abscess."
Dr. Alfred W. Adson, Rochester, Minn., "Spinal Cord Tumors, Diagnosis and Treatment."
Dr. Albert Mathieu, Portland, Ore., "Induction of Labor"; "Diet in Its Relation to the Teeth of the Pregnant Woman and Her Offspring."
Dr. Thomas Jones, Cleveland, cancer of the uterus, breast and rectum, discussed separately.
Dr. John M. Flude, Los Angeles, "The Cancer Problem and the Individual Physician."

INDIANA

Personal.—Dr. William Franklin Hughes, Indianapolis, has been appointed head of the department of ophthalmology at Indiana University School of Medicine to succeed the late Dr. Albert E. Bulson. He has been a member of the school faculty since 1903.

License Revoked.—The license of Dr. David B. Harvey, Marion, was revoked by the Indiana State Board of Medical Registration and Examination at a meeting, July 12. Dr. Harvey is serving a life sentence in the Indiana State Prison, having been convicted of murder.

IOWA

Hospital News.—The new Lutheran Hospital, Fort Dodge, erected at a cost of $100,000, was opened recently. It has a capacity of 110 beds.

Personal.—Dr. Herbert R. Sugg, Clinton, has been appointed a member of the state board of health, succeeding the late Dr. Cassius T. Lesan, Mount Ayr.

Society News.—Dr. Walter D. Abbott, Des Moines, among others, addressed the Dallas-Guthrie Medical Society, July 21, on "Injuries to the Brain, Including Traumatic Epilepsy."

KANSAS

Personal.—Dr. Clarence R. Hepler, Columbus, health officer of Cherokee County, has been appointed health officer of Sedgwick County, succeeding the late Dr. Menno H. Hostetler, effective July 1. He has held the former position for twenty-five years.

KENTUCKY

Society News.—At a meeting of the Third District Medical Society in Bowling Green, August 17, speakers were Drs. John H. Blackburn, Bowling Green, on septicemia following appendicitis; Clifton G. Follis, Glasgow, the cystic ovary; Worcester A. Bryan, Nashville, Tenn., enterospasm, and Emmet F. Horine, Louisville, hypertensive heart disease.——At a meeting of the Cave Area Public Health Association at Columbia, August 16, speakers included Drs. Arthur T. McCormack, state health officer, on "The Value of a Full Time Health Department"; Lucius E. Smith, "Newer Phases of Tuberculosis" and Philip F. Barbour, president-elect of the Kentucky State Medical Association, all of Louisville. Drs. McCormack and Smith addressed a public mass meeting in the evening on rural health problems and control of tuberculosis, respectively.

State Medical Meeting.—The eighty-second annual meeting of the Kentucky State Medical Association will be held at the Brown Hotel, Louisville, October 3-6, under the presidency of Dr. Philip F. Barbour, Louisville. Dr. John Lovett Morse, Boston, will deliver the annual oration at a public meeting, Tuesday evening. Dr. Roy Glenwood Spurling, Louisville, will give the oration in surgery on "The Epileptic Problem" and Dr. Charles N. Kavanaugh, Lexington, the oration in medicine, on "Chronic Hypochromic Anemia." The program announces symposiums on anemias and on obstetrics. Among the physicians who will present papers are Drs. Carlisle R. Petty, Lynch, "Treatment of Compound Fractures"; Ernest Owsley Grant, Louisville, "Relief of Prostatic Obstruction Through the Urethra," and William Clark Bailey, Harlan, "Diagnosis and Treatment of Empyema." The last day's program will be presented by members of the faculty of the University of Louisville School of Medicine, among whom will be Drs. Robert L. Woodard, on "Radical Treatment of Joint Tuberculosis"; Edward Speidel, "Clinical Progress in Obstetrics"; Charles W. Hibbitt, "Varicose Veins of the Broad Ligament as Cause of Pelvic Discomfort"; Walter Dean, "Prognosis of Paranasal Sinus Disease," and Bernard Asman, "Anorectal Disease." At the annual banquet at the Brown Hotel, Wednesday, October 5, speakers will be Ira V. Hiscock, C.P.H., associate professor of public health, Yale University School of Medicine, New Haven; Mrs. Walter Jackson Freeman, Philadelphia, president of the Woman's Auxiliary, American Medical Association, and Mrs. Charles E. Oates, North Little Rock, Ark., president of the Woman's Auxiliary, Southern Medical Association.

MAINE

Society News.—Dr. Charles Herbert Best, professor of physiology and assistant professor of hygiene and preventive medicine, University of Toronto Faculty of Medicine, addressed a recent meeting of the Washington County Medical Society at Calais. Papers were also presented at this session by Drs. Ernest H. Bennet, Lubec, and Clifford D. Harvey, Boston, on "Early Diagnosis and Prevention of Cancer" and "Ulcers of the Duodenum and Stomach," respectively.

MARYLAND

Dr. Williams Appointed Health Commissioner.—The appointment of Dr. Huntington Williams as commissioner of health of Baltimore to succeed the late Dr. C. Hampson Jones will take place in October, it is announced. In 1931, Dr. Williams resigned as secretary of the New York State Department of Health, Albany, to become director of health of Baltimore, a new position created to increase efficiency of the city health department (The Journal, Aug. 22, 1931, p. 545). He had been connected with the New York department since 1922. Since Dr. Jones's death, April 11, Dr. Williams has been acting commissioner of health.

Dr. Mustard to Head New Public Health District.—Dr. Harry Stoll Mustard, director of health education and of child hygiene and public health nursing, Tennessee state department of health, has been selected to take charge of the new public health district which was recently created in Baltimore. Dr. Mustard, who was formerly connected with the U. S. Public Health Service, will also be an assistant professor in the School of Hygiene and Public Health of Johns Hopkins University. He went to Tennessee in 1924 as director of the child health demonstration of the Commonwealth Fund at Murfreesboro. Recently he has been instructor in public health and preventive medicine at Vanderbilt University School of Medicine, Nashville. The health district will be placed in operation, September 15, it was announced. With the creation of this district the training of public health workers has bee made possible by a grant of about $25,000 for two or m there is no longer any difficulty in explaining natural sensitization. It has been found also that extremely minute quantities of antigen may sensitize. Perhaps the rôle of the hereditary factor in certain forms of hypersensitiveness consists in the development in the tissues of special tendencies to respond to antigens. Enough has been said to illustrate the drift both in scientific investigation and in the usage of names to accept the various manifestations of hypersensitiveness as based essentially on the same kind of immunologic mechanism.

OSTEITIS DEFORMANS

Since the first description of osteitis deformans by Sir James Paget of London, in 1876, more than five hundred cases have been recorded in medical literature. At present the x-rays afford almost the only means of detecting the disease in its early stages. Accordingly a recent writer has remarked that with the increasing use of roentgen examinations it appears reasonable that the incidence of the disease will probably be found to be still greater. Certain features of it indicate that there is doubtless a serious disturbance in the metabolism of some of the inorganic elements in the body. Several investigators have recorded a retention of calcium, magnesium and phosphorus and a loss of sulphur in cases of osteitis deformans; but such facts have not yet found widespread recognition in discussions of what is by no means a rare malady. In an investigation by Rabinowitch[1] at the Montreal General Hospital a new, carefully analyzed instance of the upset in the mineral metabolism has been brought to notice. Referring to the general behavior of the inorganic nutrients, Rabinowitch remarks that it would appear that the metabolism of sodium, potassium and chlorine differs from that of other elements; they not only play a small part in the formation of bone but also differ from the other elements in that the body appears to be able readily to adjust itself to any tendencies toward their deficiencies, though they may not always be interchangeable and, in some of their functions, may actually be antagonistic; the "law of the minimum," he adds, appears to be able to assert itself readily. In Rabinowitch's case the patient was practically in equilibrium with respect to sodium, potassium and chlorine. The lack of an effective defensive mechanism against loss of an insufficient supply of calcium, magnesium and phosphorus was shown by the positive balance exhibited for these elements. The basal metabolic rate was normal, as in other cases; hence the involvement of the thyroids in the etiology of osteitis deformans is probably excluded. Other aspects of the study tend to exclude the parathyroids as a cause. Hyposuprarenalism and hypersuprarenalism are also unlikely in the light of the clinical picture and laboratory data. Rabinowitch ventures the guess that osteitis deformans belongs to the so-called metabolic diseases rather than to the infectious disorders. The time is approaching when more sufficiently careful studies will help to solve the baffling problem of etiology.

---

[1] Rabinowitch, I. M.: Metabolic Studies in a Case of Osteitis Deformans, J. Nutrition 5: 325 (July) 1932.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m., over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

September 12. Food and Food Advertising.
September 14. Cancer of the Bowel.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:45 to 11 over Station WBBM.

The subject for the week is as follows:

September 17. Children Who Might Live.

This schedule is based on Chicago daylight saving time, one hour faster than central standard time.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Society News.—The county medical societies of Lawrence and Randolph were addressed in joint session in July by Drs. John C. Hughes, Hoxie, on treatment of diabetes, and Horace R. McCarroll, typhoid.——Dr. Sidney J. Wolfermann, Fort Smith, addressed the Crawford Medical Society in Van Buren, July 26, on the colon.

CALIFORNIA

Child Development Program.—The first county-wide program in child development work in the state, particularly adapted to farm children, will be projected in Santa Cruz County in a series of meetings, beginning September 12, according to a recent announcement. The general purpose of the conferences is to lay plans for the coordination of all the work in the county pertaining to child development and parent education, it was said. Exhibits and demonstrations will be features of the meetings, at which the chairman of the farm home department, College of Agriculture, University of California, will preside.

Changes in Health Officers.—Dr. Frank M. Lawson, Willows, has been appointed health officer of Glenn County, succeeding the late Dr. Samuel Iglick. Dr. Thomas H. Brown succeeds Dr. Iglick as health officer of Orland. Dr. David M. Kindopp replaces the late Dr. Charles J. Durand as health officer of Colfax. Dr. Kindopp is also health officer of Placer County. Dr. Louis L. Robinson has been appointed health officer of the recently incorporated city of Fairfax. The city of Delano, in Kern County, has transferred its public health work to the Kern County Health Department, of which Dr. Joseph Smith is health officer. Mr. A. Ackerman served as health officer of Delano for many years.

License Revoked—Physicians Placed on Probation.—The license of Dr. Robert H. MacLauchlan, San Francisco, was revoked, July 14, by the state board of medical examiners for violation of probation. Dr. MacLauchlan was placed on probation, July 9, 1931, when his license was restored; it had been suspended, Oct. 30, 1930, for aiding and abetting an unlicensed practitioner (The Journal, Aug. 8, 1931, p. 395). The following physicians were placed on probation for the periods indicated, after hearings based on record of conviction or plea of guilty in federal court in connection with veterans' bureau claims: Isaac Alexander, Oakland, five years; Reo B. Armitstead, Ventura, one year; William E. Glaeser, San Francisco, one year; Edward Purcell, one year; Fred H. Van Tassell, five years, Oakland, and John R. Vasko, Alameda, three years. Dr. Hiliberto A. Bonaventura, Santa Rosa, was placed on probation for three years, without narcotic privileges, for narcotic violation.

FLORIDA

Mosquito Survey.—What is described as the first investigation of its kind in Florida was begun, August 22, when a group of public health officials started a survey into the mosquito-malaria situation in the state, newspapers reported. The survey began at Tampa, and will continue south to Fort Myers, across the lower Everglades to Miami, then north to West Palm Beach, again into the Everglades area and north to Orlando. Included in the group making the survey are Dr. Mark F. Boyd, Tallahassee, of the Rockefeller Foundation; Dr. Thomas H. D. Griffitts, Albany, Ga., of the U. S. Public Health Service, and Dr. Henry Hanson, state health officer.

GEORGIA

Hospital News.—The Georgia Hospital Association was reorganized at a meeting in Atlanta, July 28. Miss Annie B. Feebeck was elected president, and Mr. George R. Burt, executive secretary.

Society News.—Dr. Henry R. Donaldson addressed the Fulton County Medical Society, Atlanta, September 1, on "The Functionless Gallbladder." Dr. Charles B. Upshaw gave a clinical talk on "Conservative Treatment of Eclampsia."——Dr. Richard B. Wilson, Atlanta, presented a paper on syphilis of the nervous system at the meeting of the society, August 18.——Dr. Wilborn A. Upchurch, Atlanta, recently addressed the Eighth District Medical Society at Madison, on prostatic resection.

IDAHO

Hospital News.—A twenty-bed hospital was recently opened at St. Anthony, by Dr. Thomas A. Ellison.——Dr. William E. Waldrop, Parma, has been appointed commandant of the Idaho Soldiers' Home, Boise.

State Medical Meeting at Pocatello.—The fortieth annual session of the Idaho State Medical Association will be held at Pocatello, September 16-17, under the presidency of Dr. Joseph Nelson Davis, Kimberly. The following speakers will be included on the program:

Dr. Caroline McGill, Butte, Mont., "Menorrhagia" and "Tissue Diagnosis and the General Surgeon."
Dr. William Dock, San Francisco, "Treatment of Cardiac Irregularity" Cause and Treatment of Chronic Arthritis."
Dı San Francisco, "Interruption of Sympathetic Pain in the Extremities" and "Neuralgia of Certain Sensory and Sympathetic Nerves."
Dr. Platt W. Covington of the Rockefeller Foundation, Salt Lake City, Utah, "State Health Departments."
Dr. Lyle B. Kingery, Portland, Ore., "Ringworm Infection, Clinical Types, Diagnosis and Treatment."
Dr. Dorrell G. Dickerson, Seattle, "Migraine" and "Brain Abscess."
Dr. Alfred W. Adson, Rochester, Minn., "Spinal Cord Tumors, Diagnosis and Treatment."
Dr. Albert Mathieu, Portland, Ore., "Induction of Labor"; "Diet in Its Relation to the Teeth of the Pregnant Woman and Her Offspring."
Dr. Thomas Jones, Cleveland, cancer of the uterus, breast and rectum, discussed separately.
Dr. John M. Flude, Los Angeles, "The Cancer Problem and the Individual Physician."

INDIANA

Personal.—Dr. William Franklin Hughes, Indianapolis, has been appointed head of the department of ophthalmology at Indiana University School of Medicine to succeed the late Dr. Albert E. Bulson. He has been a member of the school faculty since 1903.

License Revoked.—The license of Dr. David B. Harvey, Marion, was revoked by the Indiana State Board of Medical Registration and Examination at a meeting, July 12. Dr. Harvey is serving a life sentence in the Indiana State Prison, having been convicted of murder.

IOWA

Hospital News.—The new Lutheran Hospital, Fort Dodge, erected at a cost of $100,000, was opened recently. It has a capacity of 110 beds.

Personal.—Dr. Herbert R. Sugg, Clinton, has been appointed a member of the state board of health, succeeding the late Dr. Cassius T. Lesan, Mount Ayr.

Society News.—Dr. Walter D. Abbott, Des Moines, among others, addressed the Dallas-Guthrie Medical Society, July 21, on "Injuries to the Brain, Including Traumatic Epilepsy."

KANSAS

Personal.—Dr. Clarence R. Hepler, Columbus, health officer of Cherokee County, has been appointed health officer of Sedgwick County, succeeding the late Dr. Menno H. Hostetler, effective July 1. He has held the former position for twenty-five years.

KENTUCKY

Society News.—At a meeting of the Third District Medical Society in Bowling Green, August 17, speakers were Drs. John H. Blackburn, Bowling Green, on septicemia following appendicitis; Clifton G. Follis, Glasgow, the cystic ovary; Worcester A. Bryan, Nashville, Tenn., enterospasm, and Emmet F. Horine, Louisville, hypertensive heart disease.——At a meeting of the Cave Area Public Health Association at Columbia, August 16, speakers included Drs. Arthur T. McCormack, state health officer, on "The Value of a Full Time Health Department"; Lucius E. Smith, "Newer Phases of Tuberculosis" and Philip F. Barbour, president-elect of the Kentucky State Medical Association, all of Louisville. Drs. McCormack and Smith addressed a public mass meeting in the evening on rural health problems and control of tuberculosis, respectively.

State Medical Meeting.—The eighty-second annual meeting of the Kentucky State Medical Association will be held at the Brown Hotel, Louisville, October 3-6, under the presidency of Dr. Philip F. Barbour, Louisville. Dr. John Lovett Morse, Boston, will deliver the annual oration at a public meeting, Tuesday evening. Dr. Roy Glenwood Spurling, Louisville, will give the oration in surgery on "The Epileptic Problem" and Dr. Charles N. Kavanaugh, Lexington, the oration in medicine, on "Chronic Hypochromic Anemia." The program announces symposiums on anemias and on obstetrics. Among the physicians who will present papers are Drs. Carlisle R. Petty, Lynch, "Treatment of Compound Fractures"; Ernest Owsley Grant, Louisville, "Relief of Prostatic Obstruction Through the Urethra," and William Clark Bailey, Harlan, "Diagnosis and Treatment of Empyema." The last day's program will be presented by members of the faculty of the University of Louisville School of Medicine, among whom will be Drs. Robert L. Woodard, on "Radical Treatment of Joint Tuberculosis"; Edward Speidel, "Clinical Progress in Obstetrics"; Charles W. Hibbitt, "Varicose Veins of the Broad Ligament as Cause of Pelvic Discomfort"; Walter Dean, "Prognosis of Paranasal Sinus Disease," and Bernard Asman, "Anorectal Disease." At the annual banquet at the Brown Hotel, Wednesday, October 5, speakers will be Ira V. Hiscock, C.P.H., associate professor of public health, Yale University School of Medicine, New Haven; Mrs. Walter Jackson Freeman, Philadelphia, president of the Woman's Auxiliary, American Medical Association, and Mrs. Charles E. Oates, North Little Rock, Ark., president of the Woman's Auxiliary, Southern Medical Association.

MAINE

Society News.—Dr. Charles Herbert Best, professor of physiology and assistant professor of hygiene and preventive medicine, University of Toronto Faculty of Medicine, addressed a recent meeting of the Washington County Medical Society at Calais. Papers were also presented at this session by Drs. Ernest H. Bennet, Lubec, and Clifford D. Harvey, Boston, on "Early Diagnosis and Prevention of Cancer" and "Ulcers of the Duodenum and Stomach," respectively.

MARYLAND

Dr. Williams Appointed Health Commissioner.—The appointment of Dr. Huntington Williams as commissioner of health of Baltimore to succeed the late Dr. C. Hampson Jones will take place in October, it is announced. In 1931, Dr. Williams resigned as secretary of the New York State Department of Health, Albany, to become director of health of Baltimore, a new position created to increase efficiency of the city health department (The Journal, Aug. 22, 1931, p. 545). He had been connected with the New York department since 1922. Since Dr. Jones's death, April 11, Dr. Williams has been acting commissioner of health.

Dr. Mustard to Head New Public Health District.—Dr. Harry Stoll Mustard, director of health education and of child hygiene and public health nursing, Tennessee state department of health, has been selected to take charge of the new public health district which was recently created in Baltimore. Dr. Mustard, who was formerly connected with the U. S. Public Health Service, will also be an assistant professor in the School of Hygiene and Public Health of Johns Hopkins University. He went to Tennessee in 1924 as director of the child health demonstration of the Commonwealth Fund at Murfreesboro. Recently he has been instructor in public health and preventive medicine at Vanderbilt University School of Medicine, Nashville. The health district will be placed in operation, September 15, it was announced. With the creation of this district the training of public health workers has been made possible by a grant of about $25,000 for two or more years from the Rockefeller Foundation, through the school of hygiene and public health. No radical departures from present public health practices are contemplated under the plan, nor is it proposed to make the residents of the sixth and seventh wards of Baltimore, which constitute the district, the subject of medical experimentation in the public health field, it was stated. The establishment of the district was a recommendation of Dr. Joseph Mountin in his report on the public health survey of Baltimore.

MICHIGAN

Personal.—Malcolm H. Soule, Sc.D., professor of bacteriology, University of Michigan Medical School, Ann Arbor, will present a paper on "Microbic Dissociation" at the meeting of the International Society for Microbiology in Milan, Italy, in October.

Hospital News.—A new receiving hospital for the Newberry State Hospital, Newberry, to cost $364,000, has been authorized. The building is expected to accommodate 100 patients.——Two buildings, constituting the second unit of the Ypsilanti State Hospital, were formally dedicated, July 27, by Governor Brucker. It is expected that they will give an added capacity of 450 beds to the state institution.

Society News.—Dr. J. Duane Miller, Grand Rapids, read a paper on "Modern Viewpoints on the Etiology and Treatment of Female Disease" before the Berrien County Medical Society, August 24. Dr. Alexander M. Campbell, Grand Rapids, was to have given the paper but was unable to attend.——Dr. Roscoe L. Sensenech, South Bend, Ind., addressed the Berrien and Cass county medical societies, July 28, on "A Review of Gastro-Intestinal Symptomatology—Diagnosis and Treatment."

Peninsula Society Meeting.—Dr. Emil H. Webster, Sault Sainte Marie, was elected president of the Upper Peninsula Medical Society at its meeting in Sault Sainte Marie, August 11-12. The society will meet in Escanaba in 1933. Among the speakers were Drs. Edgar V. Allen, Rochester, Minn., on "Thrombo-Angiitis Obliterans and Arteriovenous Fistula"; George H. Gardner, Chicago, "Some Newer Phases of Gynecology"; Louis J. Hirschman, Detroit, "The Anal Canal as a Focus of Infection." Dr. Carl F. Moll, Flint, president, Michigan State Medical Society; Dr. James Milton Robb, Detroit, president-elect, and Dr. Clyde C. Slemons, state health commissioner, among others, made five-minute talks at the annual banquet, at which former Governor Chase S. Osborn, Sault Sainte Marie, made the principal address. Dr. Wyllys A. Manthei, Lake Linden, retiring president of the society, was toastmaster.

MISSISSIPPI

Cooperative Health Work Inspected.—Dr. Marta Robert, San Juan, P. R., chief division of child hygiene, Puerto Rico Department of Health, spent a week in Mississippi in July observing and studying the maternal and infant hygiene activities of the state board of health. In 1931, the Commonwealth Fund selected Mississippi for cooperative health work and established full time health units in Pike and Lauderdale counties. Other recent visitors to observe the health program of Mississippi were Dr. Percy L. Querens, Tulane University Graduate School of Medicine, New Orleans; Dr. Taliaferro Clark, U. S. Public Health Service, Washington, D. C.; Dr. C. J. Hollister, D.D.S., department of health of Harrisburg, Pa., and Carl E. Buck, Dr. P.H., American Public Health Association, New York.

NEBRASKA

Acting Dean Appointed.—The Rev. John J. McInerney, S. J., regent of Creighton University School of Medicine, Omaha, will serve as acting dean of the school, assisted by Drs. Bryan M. Riley, professor of medicine, and Herbert F. Gerald, professor of pharmacology, it has been announced. Dr. Herman von W. Schulte, dean since 1918, died July 13. Dr. Riley succeeds Dr. Schulte as chairman of the administrative board.

NEW JERSEY

Society News.—Dr. Jesse O. Arnold, Philadelphia, addressed the Cumberland County Medical Society, July 12, at Jericho, on treatment of eclampsia.——Dr. Edgar Burke, Jersey City, discussed "Unusual Abdominal Operations" before the Union County Medical Society, meeting at Summit, July 13.——The state department of health has suspended the publication of its bulletin, *Public Health News*, for an indefinite period. A mimeographed news letter will take its place.

Illegal Practitioners Prosecuted.—Sixteen persons have been convicted of practicing medicine without a license within recent months, according to a report of the activities of the New Jersey state board of medical examiners. Among them were:

Alexander Zabo, who conducted an herb steam bath establishment in New Brunswick.

Charles B. Richardson, a licensed osteopath who exceeded his osteopathic license by giving electrical treatments.

Yuk Sun Chin, a Chinese herb doctor of Hoboken.

John S. Hussa, an electrotherapist of Asbury Park.

Samuel A. Weinraub, Jamesburg; Benjamin Faunce, Riverside; Isadore M. Greenburg, Newark, all druggists.

NEW YORK

Personal.—Dr. Mary C. Conant is reported to have resigned from the staff of the Newark State School, Newark, after twelve years of service there and nineteen in the service of New York State.——Dr. Walter A. Leonard, Cambridge, has been appointed a member of the Public Health Council by Governor Roosevelt. He succeeds Dr. Stanton P. Hull, Troy.

Foreign Medical Schools Recognized.—The New York State Department of Education has listed for the guidance of students wishing to study medicine abroad the medical schools that meet its requirements for licensing examinations. The approved schools in Canada are those of Dalhousie University, Halifax; McGill University, Montreal; Queens University, Kingston, Ont.; Laval University, Quebec, and the universities of Toronto, Alberta (at Edmonton) and Western Ontario (at London). Medical faculties of all governmental universities in Austria, Germany, Holland, Hungary and the Scandinavian countries and all those that are part of English, Irish and Scottish universities are on the list. In order that courses in medicine in these foreign schools may be accepted, it is necessary that the students take two years of premedical work, including the required sciences, before beginning professional study.

Minimum Death Rates.—The death rate for tuberculosis in New York for June was the lowest ever recorded for the month, 64 per hundred thousand of population, according to *Health News*. Infant mortality (48) was the lowest ever recorded for June with the exception of 1931, when the rate was 44. The death rate from diarrhea and enteritis in children under 2 years of age was 4.6, the lowest ever recorded in any month and one fifth of the rate ten years ago (22.3). Maternal mortality was the lowest for June in six years (46.4 per 10,000 total births). Death rates from measles, whooping cough and diphtheria were low, but the mortality from scarlet fever was the highest in June in ten years. The death rate from automobile accidents (69.8) was also a record, the lowest for any June since 1907. On the other hand, death rates from cancer and diabetes were the highest ever recorded with the exception of June, 1930, and mortality from heart disease was the highest except for June, 1928. The suicide rate (21.6) was the highest ever recorded for June.

New York City

Friday Afternoon Lectures.—The fall series of Friday afternoon lectures for the Medical Society of the County of Kings, Brooklyn, has been arranged as follows:

October 7, Dr. Harrison S. Martland, Newark, N. J., "Interesting Pathological Cases from a Diagnostic Viewpoint."

October 14, Dr. Fred Wise, "Common Infections of the Hair and Hair Follicle."

October 21, Dr. Reginald Fitz, Boston, "Treatment of Diabetes: Its Importance, Insulin, Coma and Common Complications and Their Treatment."

October 28, Dr. Russell L. Haden, Cleveland, "Purpura and Pathological Hemorrhage."

November 4, Dr. Edward M. Livingston, "Diagnosis of Diseases of the Abdomen."

November 11, Dr. Morris Edward Davis, Chicago, "Toxemias of Pregnancy."

November 18, Dr. Milton G. Wasch, Brooklyn, "Roentgen Therapy: Its Modern Application in Benign and Malignant Diseases, Indications and Contraindications."

December 2, Dr. Smith Ely Jelliffe, "Value of Psychoanalytic Understanding in Medicine."

December 9, Dr. Albert D. Kaiser, Rochester, "When Are Children's Tonsils Abnormal? How Should They Be Treated?"

December 16, Dr. Benjamin Kramer, "Prophylaxis and Therapy of the Most Important Infectious Diseases of Children."

University News.—Dr. Harold J. Stewart has been appointed associate professor of medicine at Cornell University Medical College and attending physician at New York Hospital. Dr. James Lionel Alloway has been appointed assistant professor of bacteriology in the medical college.——The New York Post-Graduate Medical School of Columbia University will offer to medical graduates a week's intensive course in the theory and practice of traumatic surgery, October 10-15, under the direction of Dr. John J. Moorhead.

Annual Fracture Demonstrations.—The New York and Brooklyn Regional Fracture Committee of the American College of Surgeons will give its annual course on fracture treatment, October 31 to November 5. Clinics will be held at eight leading hospitals. Lectures will cover diagnosis and treatment of all types of injuries to the bone, with demonstrations of actual cases. There will also be symposiums on bone repair, operative treatment of fractures, delayed union and care of compound fractures. Information may be obtained from Dr. Fenwick Beekman, 121 East Sixtieth Street, New York, secretary of the committee.

OHIO

Personal. — Dr. Robert H. Grube, Xenia, will retire as health officer of Greene County, October 1, it is reported, after several years' service. He is at present president of the Greene County Medical Society.——Dr. Elias Dalton Peelle, Wilmington, has been appointed head football coach at Wilmington College for a period of one year.

Hospital News.—A new building for the Bucyrus City Hospital was dedicated, July 11; it has accommodations for thirty-seven patients. The old hospital will be sold and removed from the grounds.——The cornerstone of Lima Memorial Hospital, recently completed at a cost of $500,000, was laid, August 22, with ceremonies conducted by Masons of Lima. The new building replaces the old Lima Hospital.——The nurses' training school at the Home and Hospital, Findlay, will be suspended, October 1, on account of financial conditions, it is reported.

Society News.—At a meeting of the Adams County Medical Society, West Union, August 17, speakers were Drs. Frederick C. Leeds, Winchester, on hemorrhagic pancreatitis; William G. Phillips, Maysville, Ky., "Preoperative and Postoperative Care of the Surgical Patient" and Martin L. Purdin, West Union, gastro-enteritis.——Dr. Robert Conard, Wilmington, addressed the Clinton County Medical Society, August 2, on examination of the lungs.——Dr. Townsend H. Dickinson, Dayton, addressed the Greene County Medical Society, Xenia, August 4, on "Intestinal Infection in Children."

PENNSYLVANIA

State Medical Meeting in Pittsburgh.—The eighty-second annual session of the Medical Society of the State of Pennsylvania will be held in Pittsburgh, October 3-6, under the presidency of Dr. Charles Falkowsky, Jr., Scranton. Guest speakers announced include:

Dr. Frank H. Lahey, Boston, on "Changing Concepts in Treatment of Peptic Ulcer."
Dr. Russell L. Cecil, New York, "Laboratory Methods in the Diagnosis and Treatment of Arthritis."
Dr. Thomas M. Rivers, New York, "Diseases Due to the Filtrable Viruses."
Dr. John F. Erdmann, New York, "Recognition and Treatment of Postoperative Complications"
Dr. George E. Brown, Rochester, Minn., "Diseases of the Peripheral Blood Vessels."
Dr. William Darrach, New York, "Conditions Causing Delay or Complications in the Healing of Fractures."
Dr. Bernard Samuels, New York, "Intra-Ocular Tumors."
Dr. Samuel J. Kopetzky, New York, "Otitic Complications as They Occur in Everyday Otology."
Dr. Jesse R. Gerstley, Chicago, "Infant Nutrition."
Dr. Roger H. Dennett, New York, "Nirvanol Treatment of Chorea."
Dr. Oliver S. Ormsby, Chicago, "Neurodermatitis."
Dr. Joseph F. McCarthy, New York, "Progress in Prostatic Surgery."

Dr. Albert H. Freiberg, Cincinnati, will give an address at the opening session on "Economic Implications of Modern Medicine," and Dr. Falkowsky will give the presidential address following his installation. There will be symposiums on cardiovascular disease, head injuries, surgery of the colon, disease of the thyroid and tumors of the kidney.

Philadelphia

Personal.—Dr. Edward Quin Thornton, associate professor of materia medica at Jefferson Medical College, has been appointed Sutherland M. Prevost professor of therapeutics, to succeed the late Dr. Elmer H. Funk.——The University of Vienna has bestowed on Dr. George W. Mackenzie a gold honor medal with a diploma of the university in recognition of his work in diseases of the eye, ear, nose and throat.

Director Appointed for Cox Institute.—Dr. Cyril N. H. Long, assistant professor of medical research, McGill University Faculty of Medicine, Montreal, has been appointed director of the George S. Cox Medical Institute for research in diabetes at the University of Pennsylvania Hospital. Dr. Long, who has been engaged in investigations of diabetes and diseases of metabolism at McGill and at University College, London, for the past eight years, will also serve as assistant professor of medicine. The Cox Institute was opened, March 18, under the temporary direction of Dr. J. Harold Austin, John H. Musser professor of research medicine in the school of medicine (The Journal, April 16, p. 1388). The staff includes at present Drs. Russell Richardson, who is in charge of the clinic service, Francis D. W. Lukens, Frederick W. Sunderman and Morris A. Bowie.

SOUTH CAROLINA

Society News. — At a meeting of the Eastern Carolina Medical Association, Myrtle Beach, August 11, speakers included Drs. George H. Bunch, Columbia, on "Surgical Treatment of Pulmonary Tuberculosis"; James M. Northington, Charlotte, N. C., "Doctors Should Resume Leadership in Scientific, Civil and Political Affairs" and William R. Barron, Columbia, "Transurethral Prostatectomy."

Roentgen Ray Society Organized.—South Carolina radiologists recently organized the "South Carolina X-Ray Society" at a meeting in Columbia. Dr. Floyd D. Rodgers, Columbia, was chosen president and Dr. Robert B. Taft, Charleston, secretary. Charter members were Drs. Percy D. Hay, Jr., Florence; Oscar D. Baxter, Sumter; Hillyer Rudisill, Jr., Charleston; William S. Judy, Greenville; Thomas A. Pitts, Jr., Columbia; William M. Sheridan, Spartanburg; Frank R. Wrenn, Anderson; Malcolm Mosteller, Columbia; Rodgers and Taft. Meetings will be held in conjunction with the annual meetings of the South Carolina State Medical Association.

WASHINGTON

Personal.—Friends and students of John Weinzirl, Dr.P.H., of the department of bacteriology, University of Washington, Seattle, gave a banquet in his honor recently, celebrating twenty-five years of service to the university.——Dr. Casper W. Sharples, Seattle, was recently reelected president of the Washington Society for Mental Hygiene.——Dr. William O. Copps, Seattle, has recently been appointed medical criminologist for the city police department.

Society News.—A recent meeting of the Klickitat-Skamania Counties Medical Society was addressed by Drs. Alexander H. Peacock, Seattle, on medical economics; John M. Blackford, Seattle, gallbladder disease, and Frederick H. Brush, Yakima, nephritis.——The Walla Walla Valley Medical Society celebrated its fiftieth anniversary and at the same time the fiftieth anniversary in medical practice of Dr. Howard R. Keylor, Walla Walla, at a banquet, June 25.

WEST VIRGINIA

Society News.—Dr. Harry Ryerson Decker, Pittsburgh, addressed a joint meeting of the Monongalia and Preston county medical societies at Hopemont, July 26, on "Surgical Procedure in Suppurative Conditions of the Chest."

New Bridge over the Kanawha.—The Kanawha Medical Society recently unveiled a tablet naming a new bridge over the Kanawha River in honor of Dr. Spicer Patrick, a pioneer of Kanawha County. He lived from 1816 to 1884. General Mason M. Patrick, a grandson of Dr. Patrick and formerly chief of the air service of the United States Army, accepted the tablet for the family.

WISCONSIN

Hospital News.—A hospital annex to the National Soldiers' Home, Milwaukee, recently completed at a cost of $300,000, was opened, August 22. It increased the capacity of the home by 298.——A new building providing sixty beds for St. Camillus Hospital, Milwaukee, was dedicated recently. The former capacity of the hospital was nineteen beds.

University News.—Dr. Rudolf J. Noer, Wabeno, has been appointed assistant in histology at the University of Wisconsin Medical School, Madison, and Dr. Robert C. Bunts, Madison, assistant in pathology. Walter J. Meek, Ph.D., professor of physiology and assistant dean of the medical school, has been appointed a member of the National Research Council for the division of medical science. Dr. Philip Levine, of the staff of Rockefeller Institute, New York, has been appointed instructor in bacteriology.

GENERAL

Narcotics Limitation Convention Not Ratified. — The United States is the only manufacturing country which has thus far ratified the treaty drawn up at the international conference on limitation of the manufacture of narcotic drugs, held in Geneva in 1931 under the League of Nations, according to a recent announcement from Geneva. Nicaragua, Persia, Peru and Portugal, all nonmanufacturing countries, have ratified the convention. Unless twenty-five countries, including four manufacturing countries, have ratified the convention before April 13, 1933, it cannot come into force. Other manufacturing countries are France, Germany, Great Britain, Japan, The Netherlands, Switzerland and Turkey.

Delegates to Goiter Conference.—Plans for assembling an American delegation to the Second International Goiter Conference in Berne, Switzerland, in August, 1933, were adopted by the American Association for the Study of Goiter at its annual meeting in Hamilton, Ont., in June. It was agreed to designate as delegates at large all members of the association who could attend the conference. In addition, delegates from each of twelve geographic sections of the United States have been appointed and others from Canada are to be selected. The United States Army and Navy, the Public Health Service and the various medical and surgical organizations, as well as the leading goiter clinics of the United States and Canada, have also been invited to send delegates. It was decided to invite the conference to the United States for its third session in 1937. Subjects for discussion at the conference will be limited to the hyperthyroses and etiology, with the possible addition of prophylaxis, it has been announced.

Conference on Tuberculosis.—The Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Sanatorium Association will meet in Indianapolis at the Claypool Hotel, September 12-14. According to the tentative program, sessions will be held separately for the two groups. Speakers will include Drs. Ralph B. Bettman, Chicago, "Thoracoplasty—Treatment of Choice When Sanatorium Care Is Unsuccessful"; Jay Arthur Myers, Minneapolis, "Tuberculosis Infection"; Cameron Haight, Ann Arbor, Mich., "Differentiation of Lung Abscess and Pulmonary Tuberculosis"; Allan J. Hruby and Henry C. Sweany, Chicago, "Primary Carcinoma of the Lung"; Arville O. DeWeese, Kent, Ohio, "Tuberculosis in College Health Service"; James A. Edwards, Oakdale, Iowa, "Employment of Tuberculous on Sanatorium Staffs," and George S. Bond, Indianapolis, "Hyperthyroidism and Tuberculosis." Tuberculosis in industry will be the subject of one symposium. Dr. Morris Fishbein, editor of The Journal, will address the annual banquet, Tuesday, September 13, on "The New Frontier in Tuberculosis." Stanley Coulter, Ph.D., dean emeritus, School of Science, Purdue University, Lafayette, Ind., will give the address of welcome.

American Physical Therapy Association.—The forty-second annual meeting of the American Physical Therapy Association will be held in Detroit, September 28-30, under the presidency of Dr. Edwin N. Kime, Indianapolis. Among physicians who will present papers are the following:

Dr. Frank H. Krusen, Philadelphia, "Education in Physical Therapy."
Dr. Curran Pope, Louisville, Ky., "Personal Studies in Pyretotherapy."
Dr. Israel Bram, Philadelphia, "Toxic Goiter: The X-Ray as a Supplement in Nonoperative Therapy."
Dr. Richard Kovacs, New York, "The Cold Quartz Lamp."
Dr. Lewis J. Silvers, New York, "Electrosurgery in Rhinolaryngology."
Dr. Winfield Scott Pugh, New York, "Electrosurgery of the Vesical Neck."
Dr. Walter E. Pennington, Indianapolis, "Diverticulosis of the Gastro-Intestinal Tract."

Government Services

Army Officers' Pay Reduced

Medical officers of the army, navy, public health service, veterans' bureau and all other branches of the government service will suffer a reduction of 8⅓ per cent in their salaries under the provisions of the economy law recently enacted by Congress. In addition, the annual thirty-day leave with pay heretofore allowed will be suspended during the current fiscal year. In lieu thereof such officers will be required to take an annual leave of twenty-four working days on a basis of two working days per month without pay. Medical officers in the army, navy and public health service suffer in addition a reduction in rental allowance from $20 to $18 per room, and their subsistence allowance will be reduced from 60 cents a day to 52 cents a day. Retired medical officers will suffer a reduction of 8⅓ per cent in their retirement compensation. This will affect all retirement pay in excess of $1,000 per annum. There is also a provision in the act which limits pay to $3,000 per annum to all persons receiving pay on account of former service as commissioned officers who are also holding civil service positions, appointive or elective, under the U. S. government. When the salary from either source is more than $3,000, such persons may elect to receive pay of the civil office or retirement pay. Under a decision of Comptroller General J. R. McCarl, interpreting the economy law, it is held that no officer shall be furloughed without pay for more than five days in any one calendar month without the consent of such officer. There is no change in the existing law with reference to officers when absent on account of sickness or disability or lawfully absent from duty and awaiting orders.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 29, 1932.

The Undiminishing Maternal Mortality

In previous letters the concern caused by the undiminished maternal mortality, while all other mortalities have declined, has been mentioned. A committee of eminent obstetricians appointed by the government to advise on the application to maternal mortality and morbidity of the medical and surgical knowledge at present available has presented its final report. In 48 per cent of the cases a "primary avoidable factor" in the form of omission or inadequacy of antenatal examination, error of judgment in management, lack of facilities, or negligence in following advice, was found. In 1930 there were 4.4 deaths per thousand live births and the figure for puerperal sepsis was 1.92.

PUERPERAL SEPSIS

Sepsis was responsible for 18 per cent of the deaths. The majority were due to sporadic infection and could have been prevented by a conscientious technic. In a fifth of the cases the labor was difficult, and serious injury to the maternal tissue was the most important factor in determining fatal infection. In not less than 85 per cent of the normal cases in which sepsis occurred the agent was Streptococcus pyogenes. In a large proportion, infection was due to transfer of the microbe from the throat or nose of some one in attendance during the first few days of the puerperium. This may occur by droplet spray directly on the vulva or indirectly from hands, instruments or dressings. In some cases the streptococci are conveyed by the mother's fingers from her own throat or nose; also they may have been originally present in her genital tract. In sepsis following difficult labor there is in addition to these modes of infection an increased chance of endogenous infection by anaerobic streptococci or by B. coli, either present in situ or reaching the genital tract from the blood stream. To minimize these dangers the following are recommended: wearing of masks over both nose and mouth by all in attendance on the patient and by others present, use of rubber gloves with scrupulous antiseptic precautions, discouragement of talking in the room of confinement, and avoidance of vaginal examination after rupture of the membranes in a straightforward case.

OTHER CAUSES OF DEATH

In regard to toxemias, the examination of the urine and estimation of the blood pressure during pregnancy are not as effectively carried out as they should be. Midwives should be trained to determine blood pressure. Warning hemorrhage is not sufficiently regarded, and physicians do not make sufficient use of intravenous injection of blood or of transfusion. In the case of toxemia and of warning hemorrhage the woman should be placed in an institution more often and earlier than at present.

IMPERFECTIONS OF THE MATERNITY SERVICE

Imperfections of the maternity service include lack of facilities for training students, inadequate facilities for postgraduate instruction, too little instruction of young obstetricians and gynecologists to establish themselves in nonteaching provincial centers, and imperfect instruction of midwives in antenatal care and nursing methods.

MATERNITY HOSPITALS

Cases of sepsis, whether arising in the hospital or admitted from the outside, should not be treated in a maternity hospital unless an entirely separate block, separate nursing and ward staff, and separate staff accommodation are provided. For emergency or other cases which may be a source of danger on account of potential sepsis, special provision (separate small wards and labor wards with special allocation of staff) should be made. Cases of abortion should not be admitted to ordinary wards. To facilitate specialist treatment of nonobstetric conditions associated with pregnancy and childbirth new maternity accommodation should be associated with general hospitals.

Parental Alcoholism Has No Effect on Offspring

An important report entitled "Alcohol and Inheritance" has been issued by the medical research council. Before the war, Prof. C. R. Stockard of Cornell University published in America the result of experiments to determine the effects produced by alcohol on the fecundity of guinea-pigs and the quality of their offspring. His conclusions, which have been widely quoted, were that the daily administration of alcohol, in quantities sufficient to produce intoxication, caused a fall in the number of births and a liability to weak and defective offspring. Miss F. M. Durham, working at the National Institute for Medical Research, has made a large number of experiments on guinea-pigs, with an adequate number of controls living under identical conditions except for the administration of alcohol. Miss H. M. Woods has collaborated in the statistical analysis. The conclusions are quite contradictory to those of Professor Stockard. The litters from alcoholic parents or their descendants were as numerous and as heavy as in the control experiments. Deformities did not occur more frequently than in the control group, and the offspring for several generations showed no transmitted defects, such as described by Professor Stockard. It is pointed out that his experiments were performed in the days when the science of dietetics was not so advanced, and that supervision of the diet of the guinea-pigs was much more thorough in the present series. For example, a great point was made about the supply of cabbages. It is suggested that in the absence of cabbage from the diet it is possible that alcohol may have affected the breeding power. The guinea-pigs received their alcohol by inhalation while sitting in cages in a special tank. Their general health remained excellent despite daily intoxication following exposures of two or three hours. Thus there was no evidence of injury to the germ plasm.

Birth Control

At the annual congress of the Royal Sanitary Institute, Sir Thomas Horder, who was to have opened the debate on birth control but was unable to be present, contributed a paper in which he described birth control as the most practical method of eugenics available. Fundamentalists believed that it was wrong to interfere with nature, but it was too late in the course of evolution to revive these old ideas. Better and more trustworthy methods of birth control must be discovered. He regarded indiscriminate child bearing as a disease of the body politic and thought that there was need for a course of instruction in this subject. Large numbers of physicians were qualifying every year who had never received any instruction in the matter.

Mr. Harold Chapple, gynecologist, of Guy's Hospital, said that every married couple should have the right and understand the means whereby it would be possible for them to have children at such intervals as they thought fit, having regard to their health, circumstances and other views on the subject. He repudiated the idea that the object of the birth control movement was to make vice easy. It was an intensely serious movement. Thousands of women with heart, lung or kidney touble were dependent on birth control. Were they to be refused any help in a matter of life and death? Half of his patients at Guy's Hospital would disappear under sane birth control.

A clergyman, Canon E. C. W. Rose, said that he was not so sure that birth control would promote public morals. Married love was not dependent on nor limited by physical acts. Human love involved self control. Contraception provided physical satisfaction which was purely temporary at the cost of eliminating those qualities which alone made married love perfect. Approval of the practice of birth control would lead to great abuse among the unmarried.

The Waste of Drugs Under Medical Socialism

In a discussion on the panel system, Mr. W. M. Mashall, secretary of the Scottish Association of Insurance Committees, said that medical authorities proclaimed that "the day of the bottle is passing, and the pathetic belief that every visit or consultation should imply the writing of a prescription is disappearing." Yet under the national insurance scheme more than 50 million prescriptions were issued to insured persons in England and Wales—surely an appalling figure. Physicians had stated that nine tenths of their prescriptions were futile and were merely provided to please the patient. The insured population of Glasgow was 25 per cent more than that of Manchester, yet last year the prescriptions issued by the Manchester physicians cost $400,000 and in Glasgow only half that, although there was just as much illness in Scotland as in England. The demand for medicine in England was a habit rather than a necessity, and the physicians had here a great opportunity for economy.

PARIS

(From Our Regular Correspondent)

Aug. 3, 1932.

The New Site for the Paris Faculty of Medicine

For a number of years, the lack of space for the growing needs of the laboratories and the constant increase in the number of students at the Faculté de médecine de Paris has made a change of site more and more imperative. The Rockefeller Foundation donated, some time ago, 150,000,000 francs ($6,000,000) for the purpose, on condition that the central government would contribute an equal sum. All that remained to do was to decide on the new site, which would have to be large and yet not too far distant from the residential sections of Paris, to take account of the needs of the professors and their pupils. That is a double requirement difficult to realize. A preliminary meeting was recently held at the ministry of public instruction, under the chairmanship of the minister himself, which was attended by Professor Balthazard, dean of the Faculté de médecine; Professor Roussy, his assistant; Mr. Carléty, rector of the University of Paris; Mr. Cavalier, director of higher education, and representatives of other ministries. The choice fell on a tract of land (formerly used for military purposes) bordering on the southern line of the old fortifications, which is a long distance from the center of Paris. The plan was long discussed but, unfortunately, rejected to locate the new Faculté de médecine on the site of the present Halle aux vins, which, in that case, would have been transported outside of Paris. This site would have been better for the university buildings. Located on the bank of the Seine, alongside the Institut médico-légal, it would not have been too far from the other *facultés* where are installed the publishers of medical works, the shops of the manufacturers of instruments, and the rooming houses for students. The selection of the more distant site will mean a big loss to the interests mentioned. But, as so often happens in France, it was thought necessary to protect the powerful interests of the wine merchants.

Influence of Alcoholism on the Development of Tuberculosis

The predisposing action of alcoholism on the development of tuberculosis has been asserted for some time by French clinicians. It has been one of the most important "weapons" employed in the crusade against alcoholism, and Professor Debove, while he was dean of the Faculté de médecine de Paris, secured permission from the management of the Assistance publique à Paris to put on the walls of all the consultation rooms of the hôpitaux de Paris a placard with these words: "Tuberculosis is contracted in the cabaret." These placards, after the lapse of forty years, have finally disappeared, at the request of the syndicate of the dealers in alcoholic beverages, which urged that the practice was harmful to their interests. Dr. Arnould, director of the Comité national de défense contre la tuberculose, has recently published a statement in the *Presse médicale* to the effect that the foregoing warning was an exaggeration intended to shock the mind into submission. In order not to offend his compatriots, he cited only German statistics in support of his statements. During the decade from 1920 to 1929, the number of cases of cirrhosis of the liver was doubled; the number of cases of drunkenness or alcoholism treated in the hospitals was trebled, while the number of patients treated in the asylums for alcoholic psychosis had increased sixfold. During the same period, tuberculosis mortality, on the contrary, decreased one third. During the years 1922 and 1923, in particular, the figures for alcoholism were at a standstill, and even tended downward, whereas the mortality of tuberculosis increased. The explanation is easy. This was the period of deflation in Germany. The severe economic conditions not only led the population to restrict the consumption of alcoholic beverages but also its regular diet, and it was the latter fact that favored the development of tuberculosis. At present, alcoholism is again increasing, and tuberculosis is again decreasing. Mr. Arnould concludes that the crusade against alcoholism is needed to prevent the degeneration of the race and the development of dangerous psychoses, but that this crusade has no influence on the diminution of tuberculosis, which cannot be brought about other than by the amelioration of general hygienic conditions and the suppression of contagion. There is only one criticism to offer against Dr. Arnould's argumentation, and that is that the statistics that he utilized cover only persons aged 30 to 70. That is, to be sure, the period in which alcoholism makes its chief inroads on the organism; but tuberculosis is most frequent in persons under 30 years of age.

Hygiene in the Artificial Silk Industry

During the past thirty years, the artificial silk industry has developed rapidly in France (where it originated) and in other countries. The various processes employed necessitate the use of many chemical products, some of which have been found to be harmful to the workers and even to persons residing in the vicinity of the factories. Messieurs Cazeneuve, A. Morel and de Leeww recently completed an inquiry into the situation and presented it to the Academy of Medicine. The untoward incidents observed are due to the effects of alcohol, ether, acid and alkaline substances, hydrogen sulphide and carbon disulphide. Mr. de Lapersonne observed cases of conjunctivitis and keratitis resulting from the projection of droplets of sulphuric acid. It is evident, therefore, that extensive measures of protection for the workmen and persons residing in the vicinity of artificial silk plants are urgently required. The authors emphasize the need of apparatus for the mechanical absorption of the gases and the irritating products in the workrooms, together with ample ventilation. These measures have improved conditions to a great extent.

Value of the Radiologic Examination with the Patient in a Vertical Position, Head Downward

It appears that the disarrangement of the organs that results when a patient is placed in a vertical position, head downward, may bring about new and interesting observations during a radiologic examination. At a meeting of the Société de radiologie médicale de France, Dr. Henri Béclère reported recently on his success with this new method of radiographic research. By the "feet toward the ceiling" position, the author does not mean the Trendelenburg position; he means a vertical position with the head downward. The patient is held firmly to the bascule operating table by means of a special stirrup bandage provided with straps that pass across the feet and the knees of the patient. With his hands, the patient holds on to the bars at each side of the table. The region to be radiographed has been previously well studied, for the purpose of the examination in the vertical position is to procure additional information. The fluorescent screen is put in place, and the operating table is raised, with one or two stops, to a vertical position, to see that the screen is in the proper position and to assure the fixation of the patient. When the table is in a vertical position, a roentgenogram is made and the table is then lowered to a horizontal position. The operation requires only a few seconds and the patient is not inconvenienced. There are few regions of the body that, when radiographed under these conditions, do not furnish new and interesting views to aid the diagnosis.

Personal

Dr. Sparks, an American dentist in Paris, has been chosen commander of the department of the American Legion of France. A graduate of the University of Indiana, he took part in the war, at first in the French army medical corps, then as captain in the American army, for which service he was accorded the Cross of the Legion of Honor.

Dr. Camille Delezenne has died at the age of 70. A former associate professor at the Faculté de médecine of Montpellier, he had been appointed professor of physiology at the Institut Pasteur de Paris and had become a member of the Academy of Medicine. His principal researches have been on cytotoxic serums and the hormones of the pancreas. He had just succeeded in isolating insulin when the publication of his article on the subject was nullified by that setting forth the results of the researches of the Canadian investigators.

ITALY

(From Our Regular Correspondent)

July 15, 1932.

The Congress of Medical Radiology

The Società italiana di radiologia held its tenth congress in Parma, under the chairmanship of Prof. Armando Rossi of the University of Parma.

Prof. Raffaele Paolucci, director of the Clinica chirurgica of Parma, delivered the opening address, taking "Pulmonary Abscess" as his subject. Accepting the classification of Baumgartner, which is similar to that of Manfredo Ascoli, the speaker divided pulmonary suppurations into (1) simple abscess of the lung, (2) abscess fetid from the start, (3) chronic suppuration, (4) localized gangrene, and (5) bronchiectasis complicated by abscess. For each of these types he pointed out the most appropriate treatment.

Professor Vallebona of Genoa presented a paper on the radiology of acute pulmonary diseases. Speaking in general of acute pulmonary and bronchopulmonary inflammatory processes, the speaker showed the difficulty of making an etiologic distinction between them, and particularly an anatomopathologic and an anatomoradiologic division. A clinical division is more practical, one of the disorders in question, crupous pulmonitis, having a typical and characteristic clinical course that is generally sufficient for an exact diagnosis of the disease. The speaker described then the radiologic symptomatology of crupous pulmonitis, distinguishing the symptoms of the initial stage of the disease, the symptoms of the crisis, and the aspects of the period of resolution. He dealt with the involvement of the pleura in an acute pneumonic process, and with acute pulmonary processes in anomalies of the lung (lobe of the azygos vein), and considered the radiologic characteristics of pulmonitis in the child. In speaking of bronchopulmonitis, he brought out that the radiologic aspects of this disorder are less typical than those of pulmonitis. Nevertheless, he described several special forms, such as influenzal bronchopulmonitis, postoperative bronchopulmonitis, and the types due to toxic gas and to the

Friedländer bacillus. Of the complications and sequels of acute pulmonary processes, the attention of the radiologist is attracted chiefly by abscess and by pulmonary gangrene, disorders that may also be primary. Often it is impossible to make a frank differentiation between the two diseases; the differential diagnosis must take account also of the possibility (although rare) of an interlobal pleuritis. According to the speaker, the importance, in acute diseases of the lungs, of a radiologic examination of the patient has been heretofore too little recognized.

Nicotra of Catania discussed the radiology of chronic pulmonary diseases, distinguishing morbid forms due to (1) an inert pathogenic agent and (2) a biologic pathogenic agent. The former are characterized also in the roentgenogram by tissue changes of the fibrous type; in the absence of exudative phlogosis demonstrable radiologically. Pneumonoconiosis, which is the most characteristic of the disorders due to an inert pathogenic agent, has as an elementary change the pneumonoconiotic nodule, the accumulation of which leads to complex conditions. The inhaled particles of dust are deposited chiefly in the more cortical, subpleural areas of the lung—in the axillary and paraxillary regions. In miliary tuberculosis, however, the foci are distributed uniformly, with greater density in the parahilar regions.

The diseases due to an etiologic biologic agent are characterized by inflammatory exudative processes. Of these the speaker distinguished four groups: those due to (1) animal parasites, (2) vegetable parasites, (3) syphilis and (4) tuberculosis. For each group he gave the principal radiologic characteristics and pointed out that syphilis causes a notable fibrous hyperproduction, and the forms of a tuberculous nature occur as a peculiar feature of bronchiogenic metastatic dissemination. In tuberculosis, the radiologic aspects of a single focus represent initial manifestations (primary infection and reinfection, Kuss-Ghon focus, Assmann infiltrate, lobitis). In the group of manifestations with multiple foci, the speaker distinguished those with foci all alike and those with foci of various aspects. Of the manifestations with like foci, he described miliary tuberculosis and tuberculosis acinonodosa. Among those with manifold and different radiologic aspects, he distinguished cavitary formations and metastasis with acinonodose foci and cavitary formations and metastasis with lobular foci (bronchopulmonitis). In a general way, it may be stated that aspecific diseases do not give rise to cavitary or metastatic radiologic images, whereas these are characteristic of tuberculosis. Following the general discussion of the papers, the society passed a resolution demanding of the Federazione nazionale per la lotta antitubercolare that a compulsory radiographic record card be introduced, so that specific initial lesions found in school children may be recorded therein from early childhood.

Vespignani of Padua presented the official paper on radiology of the disorders of the small intestine. He considered, for the purposes of his study, the subvaterian portion of the duodenum as the beginning of the small intestine and the ileocecal valve as the distal extremity. The speaker emphasized the conception of duodenal mobility, which he regards as not sufficiently recognized, and raised the question as to whether the movements of the duodenum are to be regarded as physiologic. Duodenal stasis, diverticula and tumors of the duodenum owe to radiology the possibility of an exact identification. Vespignani described also a rare case of encapsulated visceral fibrous peritonitis, controlled at the operative table by Fasiani. Only twenty-two cases of this disorder have been described in the literature. He dealt with the small intestine in connection with operations for gastro-enterostomy and the complications that frequently follow that operative intervention; less common are duodenojejunostomy and ileotransversostomy.

Piccinino of Naples considered radiologic research in diseases of the large intestine. He distinguished the defects of position, with a constant radiologic picture and definite clinical symptoms, including changes in position, associated with deficiencies of the ligaments. Among the defects of conformation he described the megacolon and the dolichocolon. Considerable importance attaches to radiology for the light it has thrown on intestinal motility, the mechanism of which has been clarified while the study of the physiopathology has been advanced. Among the disturbances of the canalization of the large intestine are to be considered intestinal occlusion, stenosis and invagination. The principal inflammatory processes are appendicitis, colitis and intestinal tuberculosis. Diagnostic investigation of diverticula of the colon, of fistulas and of tumors finds in radiology a potent aid.

Bellucci of Perugia spoke on lesions due to rays, considered from the biologic point of view, dealing more particularly with lesions caused by roentgen rays and by radium. Since the action of rays is always destructive whatever the dose, the term "lesion due to rays" assumes a much wider significance than is attributed to it in a medicolegal sense or from the point of view of workmen's compensation, and the subject has a wide range and depth. The speaker dealt with the biologic factors of lesions due to rays and the biophysical factors that intervene not only in diagnosis but also in therapy—and in professional roentgenologists. Speaking of the general characters of lesions due to rays, he divided them into three large groups: local, general and *à distance*. The local and the general lesions may be immediate or remote; great importance attaches also to postirradiation changes in the blood plasma and in organic exchange. The speaker recalled the influence that irradiations may have on the genesis of blood disease and of endocrine syndromes, on receptivity and the course of acute diseases and of tumors, on the fetus and on posterity. In conclusion, he dealt with the biologic mechanism of the production and the reparation of lesions due to rays.

Ratti of Milan took up the functional and organic changes due to irradiations. Considering occupational lesions, the speaker stated that the persons most exposed are the radiologists, the physicists and the sanitary personnel. The site of predilection is the skin, particularly the hands; next comes the hematopoietic system (aplastic anemia; possibly also leukemia), and finally the genital region and the body skeleton. The only person who, at the present time, cannot be completely protected is the medical radiologist himself.

The Società di radiologia elected Professor Siciliano of Florence as its new president. The city of Perugia was chosen as the meeting place of the next congress.

Meeting of Sanitarians of Civil Hospitals of Genoa

The sanitarians of the civil hospitals of Genoa met recently under the chairmanship of Professor Da Gradi. Gervino and Vaccari spoke on the modern treatment of gastroduodenal ulcers. The method that they employ is jejunal feeding with the sound, combined with treatment with atropine and pepsin. The speakers brought out the difficulties of such treatment owing to the necessity of frequent radiologic control, which restricts the use of the method in ulcerations of the lesser curvature. The results that they have secured are, however, superior to those obtained by any other form of treatment, and amount to 60 per cent of recoveries as controlled thus far.

Durante expatiated on the resection of the scalene muscles in pulmonary tuberculosis. In addition to the operative technic, the speaker described a special instrument that he employs to facilitate the rapid section of the scalene muscles, either separately or combined with the section of the phrenic nerve and the posterior thoracic nerve. He mentioned also the most recent research, accounts of which have appeared in the world literature, tending to direct surgery of the pulmonary lesions toward the suppression of inspiratory excursions controlled by the scalene muscles.

Vignolo described a rare case of bilateral osteochondritis of the hip joint in a child, aged 6, who presented also a movable body, in the right knee joint, of the size of a lentil. Movable bodies of the joints are rare in children, and it is advisable to postpone surgical intervention, waiting to see whether the movable body increases in size and causes increased functional disturbances.

Trevisanello spoke on epidemic hiccup, describing four cases that he observed simultaneously in persons who were not living in close contact and who did not present at the time any influenzal or encephalitic symptomatology. The speaker cast doubt on the existence of a true epidemic hiccup, in the sense of an independent disease entity, as described by some modern authors, and regards such a morbid manifestation as merely a symptom.

MADRID

(From Our Regular Correspondent)

July 17, 1932.

Water Supply of Madrid

The director of water of Madrid recently lectured before the Sociedad de Higiene on the water supplied by the canals of the Lozaya Springs, which furnish Madrid with a daily average of 218 liters of water per inhabitant. Ten cities in the United States and three European cities receive a larger daily output from their water supplies (500 liters per inhabitant daily each of the ten cities in the United States and 268 liters each of the European cities). Twenty-four other large cities receive a still smaller daily output than that given by the Lozaya supply to Madrid. In this group may be placed London, Vienna and Berlin, with a daily output of 168, 161 and 118 liters, respectively, per inhabitant. In 1928 the government authorized an expenditure of 120,000,000 pesetas ($10,800,000). When the supply plant was established, eighty years ago, with Dr. Bravo Murillo as a director, 129,000,000 pesetas ($11,610,000) was spent. At that time Madrid had 200,000 inhabitants, while now it has more than a million Improvements have been made in the water supply plants, including the enlargement of one of the canals to more than one third of its former capacity, the installation of 100 kilometers of new pipes in the suburbs of Madrid, and the construction of a new canal costing $4,500,000, which will be ready next year. The water supplying Madrid is of excellent quality. The basin of the springs is naturally formed by hard granite. The water cannot become turbid or contaminated because the basin is protected by the dams of Villar and Puentes Viejos, constructed in 1879 and in 1920, respectively. The water reaches the city pleasantly cool, more so since 1911, when a transverse canal was constructed. Both the plants and the aqueduct are well protected against contamination The town of Buitrago, where the springs are located, is small. Nevertheless the committee in charge of the water supply of Madrid maintains a public health brigade, guards for the care of the plants and of the canals and a hospital with a capacity of eight beds. The members of the small medical center may communicate with the members of the central branch and of the laboratories of the Lozaya canals, among whom there are prominent specialists and bacteriologists, whenever necessary. The Lozaya canals furnish an abundant supply of water to several towns near Madrid. The sanitary regulations are enforced by competent officials and the water passes through a process of double chlorinization by the Wallace and Tiernan system.

Trypanosomiasis in Spanish Territories

The Madrid branch of the Association of Physicians of the Spanish Colonies recently presented before the government a report on health conditions of the Spanish territories in the coast of the Gulf of Guinea, with especial reference to the frequency of trypanosomiasis. In the city of Bata the mortality caused by trypanosomiasis, which some years ago was small, reached 12 per cent in 1930, and 42 per cent of the deaths from all diseases in 1931. The unsatisfactory conditions of health on the coast of the Gulf of Guinea cannot be considered due to economic conditions. The government of Spain is generous in matters of sanitary services for the colonies. Seventy pesetas ($6.30) for square kilometer and 11 pesetas ($0.99) for each inhabitant are allowed in Spanish colonies for public health purposes, while there is an allowance of 9.4 francs ($0.84) per square kilometer and 3.1 francs ($0.28) for each inhabitant in the French colonies Gabon and Camerun. In the report of the colonial physicians it is stated that the inhabitants of some nearby colonies have suspended migration toward Spanish Guinea because the health conditions of that region are not satisfactory.

Congress of Ophthalmology

The Sociedad Oftalmológica hispanoamericana is now holding its seventeenth congress in the Casa de Salud de Valdecilla, in Santander. Ocular microscopy is the official topic of the congress. Microscopy of the vitreous body will be the official topic for the next congress. The discovery of the so-called double slit lamp for the examination of the eye, made by Dr. Lacarrere, has enabled ophthalmologists to make important studies on pathologic conditions of the cornea. Prof. Novoa Santos believes that Dr. Lacarrere's discovery will solve certain problems offered to the ophthalmologists by intern physicians, making it possible to recognize certain disturbances of general nutrition by the presence of lipoid degeneration of the cornea. Dr. Lacarrere is the general secretary of the seventeenth congress, now in session.

Women Physicians in Spain

Dr. Carablas recently lectured on the subject of women in the medical profession. He stated that the first Spanish woman physician, Martina Castañeda, graduated in Madrid in 1882. When she graduated, all the schools closed for the day, and the students paraded, with music and banners. At present there are about 100 women physicians in Spain, some of whom are in prominent positions. Women physicians have better opportunities to practice in Spain than in some other countries. In France there are several thousand women physicians, some of whom are famous, but no woman has been given any position in the board of public health of the state, nor in a hospital as intern physician. The last congress of the International Association of Women Physicians was surprised when informed that both Drs. Soriano and Garcia de Cosa had positions in the civil navy of Spain.

Distress Among Spanish Physicians

Recent statistics seem to show that about 10,000 physicians have no practice. The schools of medicine annually graduate about 1,000 new physicians, while the annual mortality of physicians is about 200. The profession has remained indifferent to its own interests by permitting members of subordinate professions, such as midwives, nurses, dentists, chiropodists and masseurs, to enter fields which should be reserved for physicians. These factors have brought on a condition of misery and hunger in many homes of physicians. In order to remedy this situation, if possible, a general meeting has been called, to be held at Madrid on a date to be announced later. Physicians who wish to help to remedy this critical condition in the profession are requested to send their plans to the committee on organization, in charge of Dr. Pio Brezosa Tablares, Calle Salmeron, No. 100, Barcelona, Spain.

Mental Hygiene

The Liga Española de la Higiene Mental recently held several meetings in Madrid. Mr. Azaña, president of the Council of Ministers of Madrid, said at the inaugural meeting that the government is deeply interested in mental hygiene. When the meetings were over the following petitions were sent to the government: In order to preserve mental hygiene it is advisable to stop all noises in the cities, especially near hospitals, all the time, and near colleges and schools during classes and in the entire city during certain hours of the night. It seems advisable to prohibit the daily papers from publishing pictures depicting crimes, as well as descriptions of suicides, robberies and similar acts. The relation between alcoholism and mental diseases is evident. Alcoholism should be attacked not by means of prohibition but through scientific measures enforced by the government. Whereas modern psychiatry cares for psychiatric patients in dispensaries, hospitals and colonies, there are no colonies for psychiatric patients in Spain. The Liga asked the government to establish an asylum near Madrid, with departments for psychopaths, drug addicts and dangerous persons of all ages.

Meeting of Socialists

Several Spanish physicians of the socialistic party met recently in La Casa del Pueblo de Madrid to organize a national federation of Spanish syndicalized physicians. Dr. Verdes Montenegro was president of the meeting. The members of the congress passed resolutions of confidence in the general director of public health, who is a socialist of great political activity. The members of the congress also passed resolutions of solidarity with their Russian comrades in the defense of the proletarian revolution.

Lectures on Tuberculosis

Dr. L. Bernard, professor of phthisiology of the Faculty of Medicine of the University of Paris, recently lectured before the Escuela de Sanidad of Madrid on the progress recently made on phthisiology as applied to the antituberculous crusade. Tuberculosis is a contagious disease. Contagion, as a rule, takes place between human beings, especially through the sputum. The patients should be isolated from the rest of the healthy community. Good methods for isolation of tuberculous children are the Grancher and Bernard methods. In the crusade against tuberculosis the therapeutic knowledge recently acquired, such as the performance of ambulatory pneumothorax and the administration of B C G to the new-born, are of great importance. Ambulatory pneumothorax should be performed only in the dispensaries. The harmlessness of B C G and its preventive value seem to be proved. After the tuberculous patient has obtained complete recovery, an important problem is that related to the proper kind of work he can undertake. Frequently the patients are advised to do farm work. However, this kind of work sometimes demands too vigorous physical exercise.

Prof. A. Saenz of Uruguay, a member of the Institut Pasteur of Paris, recently gave a lecture before the Escuela Nacional de Sanidad of Madrid on the value of B C G in the prevention of tuberculosis. He is enthusiastic about the vaccine. A careful study of statistical data given to the Institut Pasteur of Paris on the results of the vaccination in forty-six countries (not including France, which has special statistics), pointed out that a total of 443,656 infants of less than 1 year of age received the vaccination. Among the general rate of infant mortality from all diseases, 7.9 per cent was among infants who had received B C G and 15.3 per cent among infants who had not received it. The results point out that B C G caused a diminution of 50 per cent in the infant mortality from tuberculosis.

Radio Lectures Given by Hospitals

The hospitals of Barcelona are going through a crisis. Last February the directors of several hospitals asked the assistance of the public and stated that if help could not be secured the number of beds would have to be reduced. The present national crisis has decreased the amount of donations to hospitals. Some money previously devoted to the general welfare services is now applied to salaries of some municipal departments. Several attempts were made to help the hospitals but failed; for instance, a football game was played, but the organizers encountered a deficit, which they wanted the hospital to cover. Now some radio lectures have been organized by the hospitals and they promise to be successful. The two most popular speakers of Cataluña have employed all their wit and ability to raise money for the hospitals. Every time a donation of more than 100 pesetas ($9) is received, the name of the donor is broadcast with great enthusiasm. This brought about a doubling of the efforts of persons to raise more than 100 pesetas. The result is that in a few months 85,000 pesos ($38,250) has been collected, which, if added to amounts obtained from other projects would bring a grand total of 500,000 pesetas ($45,000) given by the public of Barcelona to their hospitals. However, the amount is comparatively small. The amount given to the Hospital de la Santa Cruz has not even paid the coal bill. The directors of the five most important hospitals of the city of Barcelona have again addressed the public for help and insist that the present situation of the hospitals cannot continue.

VIENNA

(From Our Regular Correspondent)

July 20, 1932.

Congress of International Society for Speech Defects

The fifth Congress of the International Society for Logopedics and Phoniatrics was held recently in the Physiologic Institute at Vienna, under the chairmanship of Professor Fröschel. The attendance was unusually large, and eleven countries of Europe were represented. Professor Fröschel discussed the fundamental causes of speech disturbances and their connection with disturbances of other psychic functions. Professor Pötzl discussed aphasia in persons who speak several languages, and gave the results of his studies on the changes in the architectonic structure of the cerebrum in deafmutes. Professor Marburg spoke on the rôle of the cerebellum and the midbrain with respect to speech. Considerable interest centered in the address of Dr. Feuchtwanger of Munich and that of Frau Dr. Jelinek on the brain changes in patients with disturbances of the musical sense. The condition described as depersonalization of speech (a feeling of strangeness toward one's own speech) was studied by Dr. Hoff and by Dr. Silbermann in persons with brain injuries, while Feuchtwanger and Goldzieher discussed disturbances of writing occurring under the same conditions. Professor Merész of Budapest presented a paper on stammering, in which he brought the mental factors into relation with organic manifestations. During the general discussion that followed, the subject was further elaborated from the standpoint of hereditary research (Dr. Szondi); from the standpoint of the graphologic observations, and from the clinical standpoint (E. Mohr). A lively discussion was precipitated by the paper of Dr. Weiss on the stroboscopic examination of the vibrations of the vocal cords. Several new types of apparatus for this purpose were demonstrated by Dr. Stern of the Vienna Institut für Sprachkrankheiten; also by Drs. Stein and Rudin, who have constructed a portable stroboscope. Prof. J. Tarneaud of Paris discussed the theory and treatment of functional disturbances affecting the voice, while Dr. Van Thal of London spoke on "Lisping." Peculiar interest attached to the address of Dr. Zemen on "The Interpretation of Speech Curves," and also to that of Professor Flotau on spastic disturbances of the voice by overexertion, especially in singers. An instructive demonstration was presented by Dr. Némai of Budapest, who discussed the development of the larynx through an ascending series of mammals, from the standpoint of comparative anatomy. Director Soucek of Prague spoke on the development of speech in the school for deafmutes, while Frau Dr. Jelinek described the methods and the technic of auditory exercises in hardness of hearing. Considerable time was devoted to papers on the aid given in various countries to persons with speech defects. Madame Dr. van Dantzig of the Netherlands, Dr. Russell of Ohio and Dr. Segrè of Turin spoke on the arrangements in their respective countries. In conclusion, Professor Fröschels discussed the treatment of disorders affecting the voice in singers. Dr. Hajek gave a series of demonstrations based on the collections in the phonographic archives of the Vienna Academy of Sciences. It was the general opinion that the transactions had been a complete success.

The Death of Rudolf Kraus

The news of the sudden death of the bacteriologist Rudolf Kraus, in Santiago, Chile, at the age of 63, awakened great sorrow in Vienna. Kraus was a genuine Viennese, and unfortunately had suffered the fate that befalls so many Viennese. He studied internal medicine under Neusser and became assistant to Professor Paltauf, the creator of experimental pathology. He acquired scientific importance through his research in the field of serology. He established the serotherapeutic institute in Vienna, where he devoted himself especially to the study of precipitins—his most significant discovery. These researches constituted one of the bases for the development of the theory of immunity. He was intimately engaged in combating epidemics, and hence was called to aid in the suppression of cholera during the Serbo-Bulgarian war. In 1912 he was invited to Buenos Aires to superintend the erection and organization in that city of the state bacteriologic institute. Ten years later, he was called to establish the institute in Brazil for the securing of snake venom. Two years later he returned to Vienna, where he hoped to be appointed head of the department of experimental pathology at the University of Vienna, since, with the death of Paltauf, he appeared to be the only scientist who had had the necessary training for the post. He was destined to suffer a keen disappointment. All sorts of intrigues prevented what would have been a most fortunate choice. The chair was left vacant, ostensibly by reason of economy, but in reality he was opposed by a certain group because he was not of "purely German" blood. Indignant at such treatment, he turned his back on Vienna and accepted a call from the government of Chile to reorganize the public health service of that country. With the death of Rudolf Kraus, Vienna's "medical school" loses one of its most eminent representatives of recent decades.

Increase in Mortality from Almost All Diseases

The statistics of the public health service furnish an instructive picture of the morbidity and mortality as they have developed in recent years under the influence of the prevailing economic conditions. It is indisputable that the figures bearing on these factors show a constant increase. If one compares the mortality figures of 1925 with those of 1930, one notes in diseases of the nervous system an increase of 340 deaths; in pneumonia, 4,000; in diabetes, more than 2,000; in heart disease, more than 6,000; in neoplasms, even 8,000. It is held that the cause for the much higher mortality from pneumonia as compared with the prewar period lies in the reduced resistance of a large portion of the population because of defective nutrition. In explanation of the disorders of the circulatory organs, in addition to defective nutrition attention is called to the psychic factor represented by the manifold worries, and to the present tendency to carry devotion to sport to the stage of exhaustion. Possibly improved diagnosis would explain the "alleged" increase of diabetes. As a parallel observation, one may take the supposed increase of cancer, which may be found to be due chiefly to the perfected means of diagnosis. At present, more patients are going to physicians, and they are seeking a physician in earlier stages of disease. In tuberculosis alone, the number of deaths has been reduced by 10 per cent, during the quinquennium, as a result of the prophylaxis effected by the social aid stations for the tuberculous and the extensive early therapeutic aid afforded by sanatoriums and hospitals.

Marriages

M. A. Flatley, Antigo, Wis., to Miss Honora M. Flawley of Eau Claire, in New York, July 13.

Sam Perkins Bailey, Brooklyn, to Miss Annie Mary Gracey of Franklin, Tenn., in June.

James T. Quattlebaum, Columbia, S. C., to Miss Anne Elizabeth McMaster, June 25.

Clarence T. Risley to Miss Marion Olmstead, both of Conneaut, Ohio, July 9.

Alfred E. Dodson, Medford, Ore., to Miss Ruth V. Swanson, June 19.

Erle Leslie Biggs, Starke, Fla., to Miss Ethel Melba Griffin, June 15.

Henry J. Rettig to Miss Margaret Stepka, both of Milwaukee, July 2.

Deaths

Nathaniel Allison ⊕ chairman of the division of orthopedic surgery of the University of Chicago School of Medicine, died at La Jolla, Calif., August 30, of heart disease. Dr. Allison was born in St. Louis in 1876. He received his M.D. degree from Harvard University in 1901. Following a term of service in the Boston Children's Hospital from 1902 to 1903, he became dean and professor of orthopedic surgery in the Washington University Medical School, St. Louis, and held this position from 1909 to 1923. During the World War he served as chief of orthopedic surgery in the American Expeditionary Forces in France and received the Distinguished Service Cross in recognition of his service. In 1923 he returned to Harvard University Medical School as professor of orthopedic surgery, which position he held until 1929, when he became head of the orthopedic department in the University of Chicago. When in Boston, Dr. Allison was also chief of orthopedic surgery in the Massachusetts General Hospital and director of the Boston School for Crippled Children and the Boston School for Occupational Therapy. In Chicago he was associated with the Gertrude Dunn Hicks and Adele McElwee Memorial hospitals and with the Home for Destitute and Crippled Children. He was president of the American Orthopedic Association in 1922 and also a member of other medical and surgical organizations. He contributed many articles on his specialty to medical literature. He was also co-author with Ghormley of "Diagnosis in Joint Disease." In the American Medical Association he served as chairman of the Section on Orthopedic Surgery from 1914 to 1915. He rendered especially valuable service as a member of the Cooperative Committee on Fractures, which arranged exhibits on this subject at most of the recent annual sessions of the American Medical Association. He cooperated also in the publication of "The Outline of the Treatment of Fractures," issued by the Association.

John Lyman Peck, Scranton, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; fellow of the American College of Surgeons; surgeon in chief to the Hahnemann Hospital; surgeon to the Mercy Hospital, Scranton; consulting surgeon to the Wyoming Valley Homeopathic, Wilkes-Barre and the Wayne County Memorial Hospital, Honesdale; aged 62; died, July 28, of heart disease.

Leigh A. Fuller ⊕ Colonel, U. S. Army, retired, Oswego, N. Y.; University of Virginia Department of Medicine, Charlottesville, 1893; entered the Army as an assistant surgeon in 1896; veteran of the Spanish-American War; was promoted through the various grades to that of colonel in 1917; was retired in 1922 after twenty-six years' service; aged 63; died, July 28, in Fort Ontario, of acute dilatation of the heart, arteriosclerosis and myocarditis.

Noble Robert Townsend, Arkadelphia, Ark.; Hospital College of Medicine, Louisville, Ky., 1889; Medical Department of the Tulane University of Louisiana, New Orleans, 1897; member of the Arkansas Medical Society; also a minister; physician and surgeon to the Ouachita College; part owner of a hospital bearing his name; aged 66; died, June 24, of coronary thrombosis.

Alexander Stewart Monro, Vancouver, B. C., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1896; fellow of the American College of Surgeons; past president of the Canadian Medical Association; consulting surgeon to the Vancouver General Hospital; aged 60; died, August 12, in the Saskatoon (Sask.) City Hospital, of heart disease.

Harold Adams Gale, Winchester, Mass.; Harvard University Medical School, Boston, 1901; member of the Massachusetts Medical Society and the New England Pediatric Society; on the staff of the Winchester Hospital; aged 55; died, July 21, at Laconia, N. H., of septic peritonitis following ruptured diverticulum of the sigmoid.

Ira Joslin Prouty ⊕ Keene, N. H.; Medical Department of the University of the City of New York, 1882; fellow of the American College of Surgeons; formerly member of the board of health and school board of Keene; surgeon to the Elliot Community Hospital; aged 74; died, July 31, of chronic myocarditis and interstitial nephritis.

Mark W. Peyser, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1890; member of the Medical Society of Virginia; for many years secretary of the Richmond Academy of Medicine; on the staff of the Stuart Circle Hospital; aged 62; died, July 29, of carcinoma of the bronchus and chronic arthritis.

Robert Henry Goodier, Hannibal, Mo.; Missouri Medical College, St. Louis, 1883; past president of the Missouri State Medical Association and the Marion County Medical Society; past president of the Missouri State Board of Health; aged 71; died, July 22, in the Levering Hospital, of myocarditis and chronic interstitial nephritis.

Plynn Morton Bolton, Stillwater, N. Y.; New York Homeopathic Medical College and Flower Hospital, 1914; member of the Medical Society of the State of New York; served during the World War; aged 41; died suddenly, July 23, in the Leonard Hospital, Troy, of acute hemorrhagic nephritis.

John Philip Carroll ⊕ Woburn, Mass.; Dartmouth Medical School, Hanover, N. H., 1898; formerly member and chairman of the board of health; aged 57; on the staff of the Charles Choate Memorial Hospital, where he died, July 31, of complications, following an operation for appendicitis.

Harold Francis Miller, Worcester, Mass.; Ohio State University College of Medicine, Columbus, 1926; member of the Massachusetts Medical Society; on the staff of the Worcester Memorial Hospital; aged 30; died, July 16, in Shrewsbury, of pulmonary tuberculosis.

Walter Stewart, Memphis, Tenn.; Memphis Hospital Medical College, 1889; formerly superintendent of the Western State Hospital, Bolivar, and the Memphis General Hospital; aged 65; died, June 26, in the Baptist Memorial Hospital, of carcinoma of the colon.

John Merl Frick, Toledo, Ohio; Rush Medical College, Chicago, 1902; member of the Ohio State Medical Association and the American Proctologic Society; on the staff of St. Vincent's Hospital; aged 53; died, July 13, of a self inflicted bullet wound.

Lorraine Lambert Schwartz ⊕ Pittsburgh; Jefferson Medical College of Philadelphia, 1903; fellow of the American College of Physicians; aged 58; on the staff of the Mercy Hospital, where he died, July 25, of skull fracture sustained in a fall.

John K. Henry ⊕ Mauch Chunk, Pa.; Medico-Chirurgical College of Philadelphia, 1890; for twenty-five years director of the schools of Mauch Chunk; member of the local board of health for thirty years; aged 71; died, July 13, of pneumonia.

Eugene Holden Goldberg, Kearny, N. J.; College of Physicians and Surgeons in the City of New York, 1889; member of the Medical Society of New Jersey; formerly mayor; aged 63; died, June 13, of cerebral hemorrhage.

Milo Mason Loomis ⊕ Manilla, Iowa; Rush Medical College, Chicago, 1897; president of the Crawford County Medical Society; formerly president of the school board; aged 58; died, July 16, of injuries received in an automobile accident.

Samuel Ingram Muller, Long Island City, N. Y.; Long Island College Hospital, Brooklyn, 1914; member of the Medical Society of the State of New York; aged 40; died, July 11, of coronary thrombosis and arteriosclerosis.

John Warren Bail, Brookline, Mass.; Harvard University Medical School, Boston, 1903; member of the Massachusetts Medical Society; aged 55; died, July 16, at his summer home in Duxbury, Mass., of coronary occlusion.

Daniel M. Adams ⊕ Panama City, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; part owner of the Panama City Hospital; aged 52; died, July 17, in a hospital at Dothan, Ala., of a bullet wound.

Eroll Samuel Hopper, Alamo, Tenn.; Memphis Hospital Medical College, 1911; member of the Tennessee State Medical Association; aged 46; died, July 2, in the Baptist Memorial Hospital, Memphis, of tumor of the brain.

Theodore B. Ford, Columbia, Miss.; Medical Department of the University of Louisiana, New Orleans, 1870; formerly member of the state legislature and state senator; aged 83; died, July 21, of chronic myocarditis.

Willis Joseph Kirkbride ⊕ Toledo, Ohio; University of Michigan Medical School, Ann Arbor, 1901; aged 53; on the staff of the Robinwood Hospital, where he died, July 20, following an operation for appendicitis.

Waldemar J. Sieminowicz, Chicago; College of Physicians and Surgeons, Baltimore, 1893; College of Physicians and Surgeons, Chicago, 1895; aged 72; died, June 13, of carcinoma of the rectum and chronic nephritis.

Philipp Henry Letourneau, Waukon, Iowa; Chicago Medical College, 1881; formerly mayor, health officer and member of the school board; aged 71; died, July 13, of carcinoma of the bladder and prostate.

William Smith Tharp, Sioux City, Iowa; Jefferson Medical College of Philadelphia, 1879; formerly professor of genito-urinary diseases at the Sioux City College of Medicine; aged 75; died, July 3, of heart disease.

Stephen Grant Olmstead, East Stanwood, Wash.; University of Michigan Medical School, Ann Arbor, 1894; member of the Washington State Medical Association; aged 65; died in July of chronic myocarditis.

Henry Harrison Atkinson ⊕ Fordyce, Ark.; Memphis (Tenn.) Hospital Medical College, 1904; president of the Dallas County Medical Society; aged 52; died, June 6, of disease of the kidneys and heart disease.

Michelle Arnold Morin, New Egypt, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1898; aged 76; died suddenly, April 2, in the St. Francis Hospital, Trenton, of coronary thrombosis.

John S. Horner ⊕ West Pawlet, Vt.; University of Vermont College of Medicine, Burlington, 1892; health officer of Pawlet; aged 64; died, June 19, of septicemia complicated with chronic nephritis.

Francis M. Gustin, Union City, Ind.; Hahnemann Medical College and Hospital, Chicago, 1881; formerly secretary of the city board of health; aged 77; died, June 24, in the Union City Hospital.

Frederick P. Griswold ⊕ Meriden, Conn.; College of Physicians and Surgeons in the City of New York, 1876; on the staff of the Meriden Hospital; aged 82; died, June 27, of heart disease.

Mark Calvin Rabert, Phoenixville, Pa.; Medico-Chirurgical College of Philadelphia, 1915; on the staff of the Phoenixville Hospital; aged 41; died, May 15, in the Allentown (Pa.) Hospital.

William McNaul, San Miguel, Calif.; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1884; aged 75; died, June 18, of diabetes.

James Branch Taylor, Oakland, Calif.; College of Physicians and Surgeons in the City of New York, 1882; aged 81; died, in July, of chronic myocarditis and bronchopneumonia.

J. Keller Johnson, Mount Sterling, Ky.; University of Louisville (Ky.) School of Medicine, 1888; aged 68; died, July 23, in a hospital at Lexington, of cerebral hemorrhage.

Samuel Iglick ⊕ Orland, Calif.; Columbus (Ohio) Medical College, 1888; aged 77; died, July 7, of pneumonia, as the result of an injury received in an automobile accident.

Leonard Hugh Ford ⊕ Russellville, Ala.; Chicago College of Medicine and Surgery, 1915; aged 47; died, July 13, in a hospital at Florence, of a fracture of the skull.

Samuel Neely Hutchison, Long Beach, Calif.; University of Arkansas School of Medicine, Little Rock, 1915; aged 39; died, May 28, of coronary arteriosclerosis.

Leroy Henry, San Fernando, Calif.; Medical College of Indiana, Indianapolis, 1893; aged 71; died, May 30, of ethmoid sinusitis with endocarditis and meningitis.

Enos E. B. Beatty ⊕ Newton, N. J.; Medical Department of the University of the City of New York, 1887; aged 70; died suddenly, July 9, of heart disease.

Frederick William Lange, Scranton, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1890; aged 70; died, July 9.

Charles P. Curtis, *Decatur, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1908; aged 73; died, May 2, in Brea, Calif., of chronic myocarditis.*

Frederick F. Gano, *Newark, Ill.; Medico-Chirurgical College of Philadelphia, 1899; aged 58; died, June 18, in Aurora, of diabetes mellitus and pyelonephritis.*

Edwin Murray Mann, *Kenbridge, Va.; University of Virginia Department of Medicine, Charlottesville, 1889; aged 64; died, July 2, of cerebral hemorrhage.*

Albert Alexander Milliken, *San Francisco; Cooper Medical College, San Francisco, 1889; aged 65; died, June 10, in Woodland, Calif., of heart disease.*

Benjamin Franklin Clarke, *San Jose, Calif.; Medical College of the Pacific, San Francisco, 1877; aged 78; died, June 23, of heart block and arteriosclerosis.*

Charles C. Huston ✠ *Knox, Pa.; Detroit College of Medicine, 1911; aged 46; died, August 8, in the Oil City (Pa.) Hospital, of paratyphoid fever.*

Leonard A. Slater, *Richmond, Va.; University of Maryland School of Medicine, Baltimore, 1891; aged 63; died, May 19, of cerebral hemorrhage.*

Gabriel Hardin Funk, *Oklahoma City; University of Louisville (Ky.) School of Medicine, 1890; aged 64; died, May 28, of angina pectoris.*

Isidor Stein, *New York; University of Prague, 1888; aged 68; died, June 25, in the Mount Sinai Hospital, of sepsis and multiple lung abscesses.*

Charles J. Welsh, *Clyde, Kan.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1894, aged 73; died, June 23, of cerebral hemorrhage.*

Theophilus O. Duckworth, *Salt Lake City, Utah; American Medical College, St. Louis, 1905; aged 58; died, July 10, of cerebral hemorrhage.*

Ulysses G. Hoshaw, *Joplin, Mo.; Hospital College of Medicine, Louisville, Ky., 1895; aged 63; died, April 13, of coronary thrombosis.*

John Joseph Lyons, *Troy, N. Y.; Albany Medical College, 1890; aged 70; died, July 1, of chronic myocarditis and chronic interstitial nephritis.*

Henry Floyd Crandall ✠ *Oceanside, Calif.; St. Louis College of Physicians and Surgeons, 1908; aged 57; died, July 16, of angina pectoris.*

Marcus Conrad Hildebrand, *Colusa, Calif.; Chattanooga (Tenn.) Medical College, 1897; aged 63; died, June 10, of pernicious anemia.*

Charles H. Lozar, *Sheridan, Mich.; Detroit College of Medicine, 1901; aged 57; died, June 29, of tuberculosis of the lungs and intestine.*

Caswell Cusick, *Knoxville, Tenn.; Memphis Hospital Medical College, 1898; aged 68; died, June 6, in the Knoxville General Hospital.*

Ezra J. Cobleigh, *Detroit; Michigan College of Medicine and Surgery, Detroit, 1896; aged 60; died, May 30, of acute cardiac dilatation.*

Thomas S. Hollenbeck, *Portageville, Mo.; American Medical College, St. Louis, 1883; aged 79; died, June 11, of diabetes mellitus.*

George Christiansen, *Glendale, Ariz.; Northwestern University Medical School, Chicago, 1911; aged 46; died, July 13, of tuberculosis.*

Cleaver Henry Brinkerhoff, *Chicago; University of Illinois College of Medicine, Chicago, 1913; aged 43; died, July 13, of endocarditis.*

Augustus Case, *Akron, Ind.; Medical College of Ohio, Cincinnati, 1857; Civil War veteran; aged 99; died, July 12, of nephritis.*

B. J. Barnette, *Indianola, Miss.; Memphis (Tenn.) Hospital Medical College, 1896; aged 61; died, in April, of cirrhosis of the liver.*

Alexander Gibson, *Alturas, Calif.; Missouri Medical College, St. Louis, 1889; aged 64; died, June 16, of acute myocarditis.*

Alfred Gifford, *Lawrence, Kan.; St. Louis Medical College, 1878; aged 77; died, May 20, of cardiovascular renal disease.*

William H. Roueche ✠ *Erie, Pa.; Baltimore Medical College, 1895; aged 63; died, July 5, of cerebral hemorrhage.*

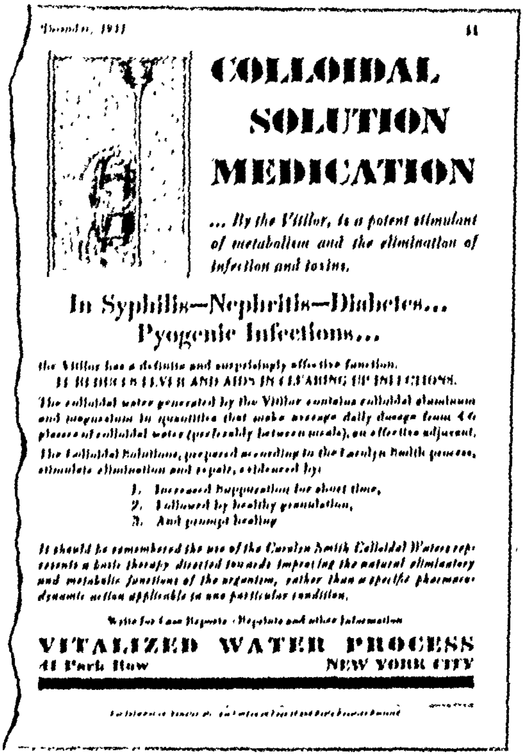
Alonzo Eagon, *Detroit; Grand Rapids Medical College, 1906; aged 70; died, May 4, of angina pectoris.*

Bureau of Investigation

VITALIZED WATER PROCESS COMPANY

The Post Office Authorities Stop Another Attempt to Make a Patent Medicine out of Drinking Water

Some ten years ago—in May, 1922, to be exact—the Bureau of Investigation received its first inquiry regarding the device called the "Vitilor," said to be invented by a Miss Carolyn Scofield Smith and promoted by the Vitalized Water Process Company. The Vitilor is a metallic container through which either distilled water or tap water is passed to emerge containing—alleged—colloid metal in solution. Miss Smith had a book on the subject as well as a number of free advertising leaflets. Her leaflets on "Colloids in Surgical Cases" and "Colloids in Medicine" were delightfully vague and aroused in the technically trained a strong element of suspicion for the claims made by Miss Smith.



December, 1931 11

COLLOIDAL SOLUTION MEDICATION

... By the Vitilor, is a potent stimulant of metabolism and the elimination of infection and toxins.

In Syphilis—Nephritis—Diabetes... Pyogenic Infections...

the Vitilor has a definite and surprisingly effective function.

IT REDUCES FEVER AND AIDS IN CLEARING UP INFECTIONS.

The colloidal water generated by the Vitilor contains colloidal aluminum and magnesium in quantities that make average daily dosage from 4 to 6 glasses of colloidal water (preferably between meals), an effective adjuvant.

The Colloidal Solutions, prepared according to the Carolyn Smith process, stimulate elimination and repair, evidenced by:

1. *Increased Suppuration for short time,*
2. *Followed by healthy granulation,*
3. *And prompt healing*

It should be remembered the use of the Carolyn Smith Colloidal Waters represents a basic therapy directed towards improving the natural eliminatory and metabolic functions of the organism, rather than a specific pharmacodynamic action applicable to one particular condition.

Write for Case Reports · Reprints and other Information

VITALIZED WATER PROCESS
41 Park Row NEW YORK CITY

Photographic facsimile (greatly reduced) of full-page advertisement appearing in American Medicine for December, 1931.

A six page leaflet compiled by Carolyn Scofield Smith and sent out to physicians and others stated, either directly or by implication, that the Vitilor would cure among other things tuberculosis, diabetes, ulcerated teeth, chronic nephritis, pyelitis, asthma, pneumonia, high blood pressure and "water on the knee."

One interesting piece of advertising for the Vitilor was a letter purported to have been written in 1924 by a professor of experimental engineering at a technical school in Brooklyn. The professor was enthusiastic about the Vitilor and especially about colloids in general. According to this letter, the Vitilor produced colloids which were united with oxygen. When water from the Vitilor was consumed by a normal person, the oxygen would not be detached from the colloid and nothing would happen. When, however, the blood reached the part of the body that was diseased, the oxygen would be detached from the colloid, due to the acid condition present, thus, as the letter stated, "causing the acid to break down into water plus a neutral salt, which is eliminated." The professor's letter went on to state that water from the Vitilor was at that time (1924) being used in the Sea View Hospital on Staten Island for tuberculosis and diabetic patients. The letter closed with the statement that "many of my students drink the water and it cures boils, pimples, infected sores, etc."

From 1922 until recently, the Bureau of Investigation has received many inquiries regarding the Vitilor and its inventor. Now come the post office authorities with a fraud order, debarring from the United States mail, the Vitalized Water Company and the Vitalized Water Process and their officers and agencies.

According to a memorandum of the solicitor, the Hon. Horace J. Donnelly, to the Postmaster General, the Vitalized Water Company and the Vitalized Water Process, are owned and operated by Miss Carolyn Smith. Miss Smith is not a physician but claims to have studied chemistry. The Vitilor was described as a tank of about two quarts' capacity, so made that water could be introduced at the bottom through which it was forced through charcoal and then passed through a small screen into and through a chamber containing fine particles of aluminum. The water was drawn out through the top and was to be drunk in doses of from one quarter of a glass to six or eight glasses daily, depending upon the seriousness of the ailments to be treated. The Vitilor sold for $45.00, the cost price, according to the memorandum, being $10.50.

The postal authorities tested one of the Vitilors through the laboratories of the Food and Drug Administration in the Department of Agriculture. The device was there set up and distilled water run through it in accordance with the directions. The amount of metallic residue that was found in the water after passing through the Vitilor was absurdly minute and there was introduced by the government evidence showing that the mineral content of ordinary tap water in various cities is largely in excess of the inconsequential amount added to water that has passed through the Vitilor. The following table shows the aluminum and calcium content of tap water in five cities as compared with the amount of these same metals that would be added by passing it through the Vitilor.

	Milligrams per liter	
	Alumina (Al_2O_3)	Calcium (Ca)
Vitilor water	1.5	29.
Baltimore tap water	4.	18.
Detroit tap water	2.	27.
Harrisburg, Pa., tap water	1.	14.
Springfield, Ill., tap water	10.	50.
Youngstown, Ohio, tap water	3.	49.

The government also presented evidence to show the various foods included in the daily diet contained more aluminum and calcium than is to be obtained by treatment of water with the Vitilor. It is interesting in this connection to note that Miss Smith's device was recommended in the treatment of cancer. The interest lies in the fact that while Miss Smith is recommending aluminum salts in the treatment of cancer, there is a group of rather vocal faddists (together with some quacks) which has, during the past few years, been advancing the thesis that aluminum cooking utensils are the cause of cancer! The solicitor's memorandum concludes with these words:

> "Uncontroverted expert medical testimony in this case shows that the various diseases and ailments claimed to be benefited, cured or prevented by drinking the quantities of water passed through the 'Vitilor' as prescribed by the respondent will in no instance be benefited. When it is considered that the very metals claimed to be added by the 'Vitilor,' both in colloidal and other forms, are daily consumed in food and drink in amounts in excess of the amounts obtained through this device the absurdity of the claims of respondent are manifest.
>
> "The evidence before me shows and I so find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises.
>
> "I therefore recommend that a fraud order be issued against the Vitalized Water Company and Vitalized Water Process, and their officers and agents as such, at New York, New York."

The fraud order was issued July 6, 1932.

The Father of Medicine.—Hippocrates was primarily a physician, endowed with remarkable powers of observation and with an unusual store of common sense.—Major, R. H.: Classic Descriptions of Disease, Springfield, Ill., Charles C. Thomas, 1932, page 5.

Correspondence

EXTRAPANCREATIC (CELLULAR) INSULIN

To the Editor:—I would beg the privilege to differ from the conclusions of the Toronto investigators that "there is no evidence that any tissue other than pancreatic either produces or stores insulin." Your editorial on the alleged distribution of insulin (THE JOURNAL, June 25, p. 2291) calls attention to the intricacies of the most modern extraction methods. Tests for insulin are not chemical but biologic, calling for the averaging of results from a large number of mice. You have pointed out that past experiments on plant tissues were inconclusive, and the critics generally agree that this whole question should be reopened: I agree with them but do not agree with the Toronto investigators who practically close the question when they say "there is no evidence." I think that there is evidence, and plenty of it, of the physiologic action of extrapancreatic insulin, to be found in the metabolic data of Soskin, in his various experiments on depancreatized dogs (Tuttle, G. H.: *New England J. Med.* **206**:8 [Jan. 7] 1932). The evidence from extraction is at most negative evidence, whereas that from metabolic data is positive evidence of the physiologic action of some kind of insulin. One reason at least for the failure to extract tissue insulin is the following: The insulin of the pancreas as produced by the cells of the islands of Langerhans is a chemical entity capable of crystallization by the method of Abel. The tissue insulin, of which there is evidence through metabolic data, is impossible of extraction by present known methods, and hence its chemical form is not known; but one thing is practically certain, that the two insulins are not chemically identical since one is produced and activated in the originating cell, where it performs its function, whereas the pancreatic insulin is produced within the pancreas in an inactive state and does not become activated until it leaves the pancreas, which is plainly shown by the strictly scientific experiments of A. H. Clarke (*Johns Hopkins Hosp. Rep.*, 1916). Briefly summarized, these show that if the normal pancreas is perfused with Locke's solution containing physiologic amounts of dextrose, no sugar disappears from the solution. (Plenty of insulin in the pancreas, but in an inactive state.) When the heart was perfused with this solution, the same amount of dextrose disappeared as when normal blood flowed through it. In the next experiment the solution was first perfused through the pancreas (from which it absorbs inactive pancreatic insulin) and then passed through the heart. In this last test from ten to thirty times as much dextrose disappeared in the heart, showing that much inactive insulin was taken up by the solution while passing through the pancreas, and that this insulin became activated while passing through the heart, causing dextrose to disappear. In other words, the insulin that is produced in the pancreas, as well as commercial insulin, is inactive insulin capable of crystallization and of extraction; while the tissue insulin is active insulin, incapable of extraction *as yet*, or of crystallization, but clearly demonstrable by metabolic data furnished by Soskin's (*J. Nutrition* **3**:99 [Sept.] 1930) series of experiments on depancreatized dogs, examples of which I will briefly describe. By old methods such dogs survived for only a week or ten days; by modern methods they may be kept alive indefinitely. The present method of preparing an experimental dog is to remove the pancreas by operation and then to give insulin and raw pancreas until carbohydrate metabolism returns to normal. After this, insulin and pancreas are withdrawn and the dog becomes diabetic. If he is allowed to continue diabetic on a protein and fat diet only, he will live from three to six weeks in favorable cases; but if he is fed a small amount (15 Gm.) of raw pancreas each day, in addition, he will live for several months; or if he is given lecithin daily after the method of Soskin (*Biochem. J.* **23**:1385, 1929) he will live a year or more, and it is believed that dogs can be made to live indefinitely under lecithin No insulin is given Now these facts seem to me to show not only that cellular (or tissue) insulin exists in the dog after depancreatization, but that it has the power of increasing to such an extent as to compensate completely for the loss of the pancreatic insulin Many organs of the body employ this method of compensation But since the compensation develops slowly, and the respiratory quotient in Soskin's cases does not begin to rise from 0 70 or thereabouts until from ten to fourteen days after withdrawal of insulin, one more reason for the failure of the Toronto investigators to secure cellular insulin is apparent, as they killed their dogs after only five days, and since only small quantities of cellular insulin are necessary while the powerful sugar oxidizing action of pancreatic insulin is in operation, only small amounts are normally present in the cells, but on removal of the pancreas this amount increases slowly but effectively until it can be shown from the data of Soskin's tables that about 60 per cent of the carbohydrates of the food still continue to be metabolized after the removal of the pancreas and its insulin At present there is no known way by which sugar can be oxidized and glycogen formed for the continued action of the heart, respiratory and other muscles for a period of a year or more, except by our present known system of carbohydrate metabolism, of which insulin in some form is an essential part, so that until some new system of carbohydrate metabolism not requiring the assistance of insulin, which will furnish vital energy to these dogs and keep them alive for a year or more, is clearly demonstrated, I claim that the existence of other insulin than the pancreatic in the body cannot be denied, even though present methods of extraction fail to show it More than thirty years elapsed after Minkowski's discovery before Banting finally was successful in extracting pancreatic insulin

George H Tuttle M D, South Acton, Mass

IRRATIONAL MIXTURES FOR SPINAL ANESTHESIA AND PEPTIC ULCER

To the Editor —Protest should be entered against the apparently commercialized exploitation of the various unscientific and irrational mixtures proposed by George B Pitkin, M D, of Bergenfield, N J A few courageous workers were bold enough to call attention to the irrational mixture containing procaine, starch and strychnine proposed for 'controlled spinal anesthesia" and exploited under the trademarked name of "Spinocaine" by the H A Metz Laboratories, Inc

Recently Dr Pitkin proposed another irrational mixture of protein, lipoids and emetine, for intravenous injection in the treatment of peptic ulcer Dr Pitkin's report on this mixture was grossly uncritical, the exact composition of the mixture was not stated although meticulous directions for its administration were given, and it is obvious that whatever beneficial results were claimed in the report were due to the admitted use of what was essentially a Sippy diet along with this extraordinary intravenous medication The H A Metz Laboratories, Inc, have now the temerity to exploit this irrational and dangerous mixture under the trademarked name of "Synodal (brand of emetabol)"

Ordinarily such a matter as this would merit on the part of scientific medicine only the silence with which "Spinocaine" was received The inclusion of strychnine in a material designed for subarachnoid injection is open to serious objection on the grounds of possible danger unless the strychnine is present in homeopathic doses, when its inclusion in the mixture can only suggest an excuse for a proprietary interest The inclusion of emetine in a preparation proposed for the intravenous treatment of such a condition as peptic ulcer is open also to serious objection on the grounds of possible danger unless the emetine is present only in homeopathic doses, when its inclusion in the mixture would also suggest merely an excuse for trademark or patent purposes Emetine is well recognized as a powerfully toxic alkaloid very slowly excreted from the body, apparently cumulative in action, and particularly dangerous for cardiac muscle It would seem that a word of caution to physicians generally who may be led astray by the extraordinary exploitation of the work of Dr Pitkin would be in order at this time, if only to inhibit the extension of his activities into still more dangerous fields

Chauncey D Leake, Ph D, San Francisco
Professor of Pharmacology, University
of California Medical School

TULAREMIA AND PARINAUD'S DISEASE

To the Editor —Tularemia in Sweden is the subject of an editorial comment in The Journal, August 13, page 567, the last sentence of which I would like to question, i e, "He states that many cases which had been diagnosed Parinaud's disease were later proved to be cases of 'conjunctivitis tularensis'"

My objection relates to the use of the word "proved," which should have been "assumed," especially since Granstrom does not go so far as to say that it is proved

I have given considerable attention to testing the serums of cases of Parinaud's disease, especially from the New York clinics, and I have never found one that agglutinated Bacterium tularense

Edward Francis, M D,
National Institute of Health,
Washington, D C

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted on request

OVARIAN EXTRACT IN HEMOPHILIA

To the Editor —In De Lee's 'Principles and Practice of Obstetrics" third edition, page 11, line 10, is the following statement 'Ovarian extract reduces the coagulability of the blood and reduces blood pressure ' In The Journal, April 23, Foord and Dysart report the treatment of a case of hemophilia by ovarian extract The statements seem contradictory Please explain

M D, California

Answer —The third edition of De Lee's "Principles and Practice of Obstetrics" was published in 1921 This was before the work of Allen, Doisy, Pratt, Zodek and others on the female sex hormone and the sex hormone of the anterior pituitary In the fourth edition the sentence quoted is omitted, although the paragraph remains practically unchanged

The rationale for the treatment of hemophilia by the use of ovarian extract is based on the sex linked transmission of the disease Hemophilia occurs only in males, while it is transmitted through the female Although the female transmits the disease to her sons, she shows no manifestation of the disease If the female can transmit the disease she must potentially have the disease and there must be something in the female mechanism that masks its presence The greatest difference between males and females is the sex organs, and the ovary is the most important of the female sex organs Whole ovarian preparations have given encouraging results in the treatment of hemophilia

When theelin, lutein and several preparations of whole ovary are added to normal blood in a test tube, the clotting time of the blood is not materially changed When these substances are added to hemophilic blood in a test tube, the clotting time of the blood is decreased These substances do not reduce the coagulation time of hemophilic blood to normal but do decrease it to from one half to one fourth of the time of the control The action here seems to be on the blood platelets, by decreasing the resistance of the platelets, the clotting of hemophilic blood is hastened

In the sixth edition of Dr Williams' book on Obstetrics, published in 1931, the following statement is made "Menstrual blood contains fewer red cells and more lymphocytes than the circulating blood and according to Schickele, and Stickel and Zondek, the absence of coagulation is due to substance formed in the uterine tissue, as the fluid expressed from the uterus under pressure inhibits coagulation when added to normal blood."

The work on sex hormones is young and the part they play in the entire body mechanism is far from understood.

SYPHILIS IN PREGNANCY

To the Editor:—In March, a young married woman, aged 21, came to my office complaining of pain on the left side, simulating pleurisy. Examination disclosed the presence of mucous patches in the throat and on the vaginal mucous membrane. The patient was two months pregnant. The Wassermann reaction was four plus, which was confirmed by a subsequent blood test. After taking three injections of 0.2 Gm. of water soluble bismuth and two injections of 0.45 Gm. each of neoarsphenamine, the patient refused further treatment. She has returned at the present time and the blood Wassermann reaction now is negative. The pregnancy has continued without any untoward events. In the meantime, there has developed a systolic murmur over the apex, loud and blowing, but no apparent enlargement of the heart. The blood pressure is 102 systolic and 40 diastolic. How do you account for the negative Wassermann reaction in view of such a small amount of treatment, and how should treatment be directed from this period on? Please omit name.

M.D., Ohio.

Answer.—The pregnant state may have something to do with the change to a negative Wassermann reaction after the small amount of treatment. The chemical and physical changes that take place in the blood of pregnant women may influence the Wassermann reaction and for this reason some obstetricians do not believe that the Wassermann reaction is as reliable in gestation as in the nonpregnant state. However, most syphilologists place as much reliance on the test in pregnancy as at other times. Another possible explanation for the rapid change to a negative test is that syphilis may affect women to a milder degree than men.

In spite of the negative Wassermann reaction, the patient should be treated intensively not alone for her own sake but for the benefit of the unborn child as well. Syphilis is transmitted from the mother to the fetus through the placenta. This usually takes place after the fourth or fifth month of gestation, and unless treatment is instituted at this time and continued throughout gestation, the child may be born afflicted with syphilis. The more thorough the treatment, the greater the chances for a living and healthy child. After delivery, even if the child is apparently healthy, Wassermann tests should be repeatedly taken on both mother and child for many months. A roentgenogram of the baby's long bones may be of assistance if syphilis is present. If the blood tests or the roentgenograms are positive, further treatment is, of course, to be given to both mother and child.

The systolic murmur perhaps has no especial significance, because such murmurs are common during pregnancy. However, the heart should be reexamined from time to time and it is important to check up on the patient's blood count. If anemia is present, this should be treated by means of diet, liver extract and iron and arsenic preparations.

NITROHYDROCHLORIC ACID IN HAY FEVER

To the Editor:—Beckman, in his "Treatment in General Practice," advocates the use of 10 minims of aqua regia, or concentrated nitrohydrochloric acid, to be taken by mouth, well diluted with water, four times a day, in allergic states, especially hay fever. What is the rationale of this treatment? If, as Beckman claims, the allergic individual "is at all times in a state of relative alkalosis," is aqua regia the best substance to counteract it? What are the dangers? Kindly omit name.

M.D., Mineola, Long Island, N. Y.

Answer.—About a year and a half ago, Beckman offered the suggestion (The Journal, Nov. 22, 1930) that there may be an intimate relationship between acid-base balance and the allergic state, but he has subsequently on several occasions refused to discuss further the matter either in addresses or in print, because of his stated belief that much harm can come of the reiteration of hypotheses unsubstantiated by experimental studies. It is therefore not strictly correct to say that he "claims" that the allergic individual is at all times in a state of relative alkalosis, but only that he has drawn the attention of the profession to the fact that this point of view merits investigation; with this position many students of the matter are heartily in agreement. On purely empirical grounds, however, the nitrohydrochloric acid treatment of hay fever, as revived by Beckman, continues to be advocated by him; its rationale is still unexplained, the sole warrant for its use seeming to be the success obtained in a certain proportion of cases. It is not thought that the remedy, if used in the manner advocated, is in any wise dangerous, as it has been used for other purposes, and in variable dosage, by several generations of physicians.

TREATMENT OF UNDULANT FEVER

To the Editor:—My brother has had Malta fever for the past year. At first he was bedfast but last fall I started giving him Malta fever vaccine, made by the National Drug Company. This keeps his fever down and he is up and able to work as long as he takes a cubic centimeter of the vaccine, about every three days. As soon as he stops the vaccine his temperature begins to rise. Do you think he will wear out the disease as long as he is not permitted to have fever? Some seem to think that he will have the disease forever unless his fever is allowed to take its natural course. He is in fine condition. His weight is 196 pounds (89 Kg.), which is normal. He is quite strong but tires easily. He was given some severe reactions last fall but these did not change the course of the disease any. He has had neoarsphenamine and mercurochrome-220 soluble intravenously. Perhaps it would be interesting to know that he can take 50 grains (3.25 Gm.) of quinine a day and not even know it, as far as tolerance is concerned. Also is there anything else I can do for him? His age is 27.

C. Dryden Baird, M.D., Eureka, Kan.

Answer.—Recovery is achieved gradually in the vast majority of cases of undulant fever. As the patient in question is young and apparently in good physical condition, it is believed that the outlook is favorable for recovery. A few cases have continued over a period of years. In such cases it is well to search thoroughly, by physical examination, for evidence of localized infections, and, if found, surgical procedures may be invoked. Brucella infection has been found in the gallbladder and in ovarian lesions and it probably may localize in various lymph nodes, particularly the retroperitoneal glands. Rest in bed during the febrile period and for a reasonable time after the temperature becomes normal offers greater hope of complete recovery at an earlier date than other management.

PARKINSON SYNDROME AFTER ENCEPHALITIS

To the Editor:—Please outline the latest treatment for Parkinson syndrome (involving left hand and forearm only), vertical nystagmus and mental depression, all following epidemic encephalitis six years ago. What is the prognosis in a woman, aged 26? Has hyoscyamus been proved to be of value? Please omit name and address.

M.D., New York.

Answer. — The outlook for recovery in such a case is extremely poor, but the condition may become stationary and not shorten life materially. The most useful drugs are scopolamine hydrobromide, stramonium and atropine, but in a given case one cannot tell which drug will do the best without giving each a trial of some weeks.

TREATMENT OF AMEBIASIS AND SYPHILIS

To the Editor:—A woman, aged 62, is a chronic carrier of Amoeba histolytica. One son, aged 28 years, has amebic colitis. Both show Amoeba histolytica on their stool examination and have for years. A second son, aged 38 years, has attacks of acute abdominal cramps with stools containing mucus and blood, but his stools show no Amoeba histolytica on repeated microscopic examinations. He acquired active syphilis eleven weeks before seeking medical advice. At this time he presented florid secondaries with a four plus Wassermann and a positive Kahn reaction. Four injections of 0.9 Gm. of neoarsphenamine produced an exfoliative dermatitis. Intravenous injections of 1 per cent mercuric cyanide or mercuric oxycyanide solution produce eructations of gas and abdominal cramps, with passage of mucus and blood in stools which show no amebas. Please advise as to treatment. Please omit name.

M.D., California.

Answer.—The woman, aged 62, and the son, aged 28, might well be given chiniofon-N. N. R. (see New and Nonofficial Remedies, 1932, p. 125) or carbarsone (The Journal, Jan. 16, 1932, p. 230) in the recommended dosage of 0.25 Gm. in gelatin capsules twice daily after meals for ten days, in a total dosage of 5 Gm. The latter drug is in the experimental stage. Preceding this treatment, urinalysis and a phenolsulphonphthalein test should be done to exclude liver or kidney conditions which would make the use of arsenic undesirable. After a free interval of ten days to allow for excretion, the treatment could be repeated if cysts reappear.

The second son, aged 38, presumably has also an amebic infection, although the entire colitis may be syphilitic. Careful examination of fresh stools, both for cysts and for trophozoites, should be combined with sigmoidoscopic examination and search for amebas in deep scrapings. A systematic review of the causes of dysentery ought to decide the etiologic diagnosis.

It is not stated whether or not the colitis and dysentery preceded the syphilitic infection. Certainly arsenicals must be avoided in earlier treatment. The phenolsulphonphthalein test and urinalysis should be watched repeatedly. If amebas are present, emetin hydrochloride should be given, 0.03 Gm., hypodermically, one dose daily for ten days, unless contraindicated by serious fall in blood pressure or increase of dysentery. At the same time, one daily retention enema of 200 cc. of 1 per cent chiniofon-N. N. R. should be given. The direct treatment of the syphilis might be continued cautiously with iodobismitol (ampules 2 cc.) Squibb, one-half ampule per dose with two free days between for two doses, and then a full ampule on each third day to a full course of ten injections (Hanzlik, P. J.; Mehrtens, H. G.; Gurchot, Charles, and Johnson, C. C.: Iodobismitol, The Journal, February 13, p. 537). Further treatment would have to be planned in the light of the clinical course.

PAIN AFTER INTERCOURSE

To the Editor.—A married woman, aged 44, height 5 feet 4 inches (162 cm.), weight 168 pounds (76 Kg.), always healthy and well except for painful menstruations, has been treated by having the cervix dilated, but without relief. She was married in 1917 and in 1920 was delivered of a normal child by high forceps extraction. She sustained a third degree tear, which was repaired, and then mild sepsis developed, with good recovery. Thereafter she began to have attacks of pain simulating appendicitis and was operated on in 1924. A suppurating appendix was removed; there was pus in the fimbria or the right tube, which was drained, several small cysts were removed from the right ovary and a trachelorrhaphy and perineorrhaphy was done. Recovery was uneventful and health has been excellent since, except for constipation. The menstruations have been regular, only moderately painful and normal in color. She has no vaginal discharge. The entire physical examination shows her to be an apparently sound, normal woman. However, she has had one symptom ever since the operation that has refused to respond to any kind of treatment. Immediately after sexual intercourse she has a severe, deep pelvic pain on the right side, of an intense aching character, lasting from twenty to thirty minutes, and slightly relieved by pressure and heat. Her libido is normal, and she has no aversion to the sexual act and has a normal orgasm. She has no pain unless she experiences the orgasm. The act itself causes her no distress. Can you advise me of anything I can do in this case? Both she and her husband are anxious for her to be relieved. Please do not publish name.

M. D., Iowa.

Answer.—It is almost certain that the anatomic changes brought about by the operation are responsible for the pain experienced by the patient. However, it is not easy to explain the mechanism by which the pain is produced unless there are large palpable and visible scars in the vault of the vagina or unless the vaginal vault is markedly constricted. Since the discomfort is present only when the woman experiences an orgasm, the sudden disappearance of intense vascular congestion most likely plays a part. Perhaps one or more sensory nerve ends were included in some of the sutures at the time of operation and these are affected by the enormous engorgement of blood that occurs in the surrounding tissue during intercourse and the sharp withdrawal of blood after an orgasm. Treatment should be conservative and should consist of repeated gentle dilation of the vagina, especially the upper part, with glass or other dilators.

PREECLAMPTIC TOXEMIA

To the Editor.—A nullipara seven months pregnant, in good physical condition and everything normal, within ten days of examination returned with epigastric pain, failing sight in both eyes and a blood pressure of 170/100, which had previously been 124/75 constantly. I sent the patient home to bed on a nonnitrogenous diet. Within twenty four hours the blood pressure rose to 220/120 and the patient complained of an excruciating generalized headache. She was taken to the hospital immediately and placed on a strict Stroganoff regimen. During the first twelve hours the patient rallied. The blood pressure dropped to 175/100 and then began to rise. Venesection was performed, 750 cc. of blood being drawn without avail. The blood pressure rose to 230/125 and the head was "bursting." The epigastric pain was not complained of. At this time a classic cesarean section was performed, the child being a normal, three pound girl, who died after fourteen hours. The mother progressed nicely. The headache left in about twelve hours but was considerably alleviated shortly after the patient awoke from her ethylene anesthetic. After six weeks the blood pressure has gradually dropped to 135/100 and the eyesight in that time has returned, completely at times, but for the most part it is not normal as yet, though the patient can read ordinary print for short periods. An ophthalmologist has been following the eyes from the start of the trouble and he thought the eye trouble was due to retinal hemorrhages. At this time he thinks that the sight will return almost if not completely. Kindly give me an opinion on this case. Is the blood pressure usually this slow in returning to normal or will it return completely? What should be the interpretation of the diastolic pressure in this case or one like it? The fluid intake and output was in good proportion throughout this trouble even at its peak, although the urine was extremely turbid with albumin with the heat test. There were no casts. Would a kidney function test have been of any avail or help here? Please omit name.

M.D., Illinois.

Answer.—This was a case of acute preeclamptic toxemia and the treatment carried out was correct, except in one essential. Local anesthesia should have been used for the cesarean section rather than ethylene, because it has been shown that all inhalation anesthetics may be injurious to women who have any of the toxemias of pregnancy. The ophthalmologist is correct in his prognosis because the eyesight is nearly always restored to normal after a few weeks or months. It is impossible to predict whether and when the blood pressure will return to normal even in the cases in which there is absolutely no clinical or laboratory evidence of permanent injury to the kidneys. The diastolic pressure is of great importance. Judging from the clinical course in this case there is at least a 60 per cent chance that both the systolic and the diastolic pressure will return to normal in due time. It frequently happens that normal women have a mild hypertension and even a mild albuminuria six weeks after delivery. On the other hand, occasionally women with nephritis have a normal blood pressure and urine at this time. Renal function tests performed during pregnancy or the early puerperium are not a reliable guide as to whether or not the patient has definite nephritis and will have permanent renal injury. Unless there is outspoken evidence of a true nephritis it is best to defer the final diagnosis until four months after delivery, although the clinical diagnosis made at the time a patient is discharged from the hospital is usually correct. Peckham and Stout (*Bull. Johns Hopkins Hosp.* **49**:225 [Oct.] 1931) examined a large series of women who had toxemia, excluding eclampsia and excessive vomiting, and they found that 40 per cent had a definite chronic nephritis from four months to four years after delivery.

DANGERS OF DUSTS IN RAYON PLANTS

To the Editor.—A manufacturing plant deals with a process during which the atmosphere of the work room is filled with a fine lint known as floc, made up of ground cotton and rayon. This floc is often composed of ground material that has been dyed. Outside of the hazard one would expect from inhalation of atmosphere permeated by cotton fibers, what industrial hazard could be expected in addition, owing to the fact that these fibers have been dyed? Is there danger of lead, arsenic or aniline intoxication following the inhalation of this floc, assuming, of course, that the dyes contain these chemicals?

A. D. Lazenby, M.D., Baltimore.

Answer.—Vegetable dusts taken into the lungs are essentially harmless, except as they may lead to allergic states.

The old term "bysinosis," descriptive of a pneumonoconiotic state due to cotton dusts, is without practical importance. No dusts long entering the respiratory tract are wholly innocuous, but if the hazards from silica dust are placed at 100, those from cotton are not more than 5.

Dust from unmodified rayon is not at this time regarded as harmful. Certain artificial silks may now be weighted with lead or other toxic agents. If so, hazards may arise.

This query assumes that lead, arsenic and aniline are contained in the dyes coloring the dust particles. Accepting this, actuality of hazards will depend solely on the quantity of these agents reaching the lungs. Less than a milligram, daily reaching the lungs, of any one of the three, is capable of inducing harm. The daily intake of a milligram of a combination of the three may bring about a "mixed intoxication." However, it may be observed that many finished aniline dyes are harmless; that the quantity of arsenic or lead may be below the threshold of harm.

It may prove advantageous to determine the quantity of dust, by weight, in a given volume of air, and near the same time determine the quantity of lead and arsenic in a representative sample of collected dust.

AMEBIASIS CUTIS

To the Editor.—I would appreciate a discussion of the accepted treatment and the precautions in preparing the patient for treatment in a case of amebiasis cutis. If emetine is suggested, please state who prepares ampules for intravenous medication, and state precautions and dosage. Some time ago an article appeared in The Journal stating that extirpation of the diseased areas was the best and most positive procedure. Will you please give your opinion? Please omit name.

M. D., California.

Answer.—Amebiasis cutis, an ulceration of the skin due to Endamoeba histolytica, was first described by Engman and Heithaus (*J. Cutan. Dis.* **37**:715 [Nov.] 1919). The diagnosis must be confirmed by finding motile amebas in fresh preparations from lesions of the skin or by fixed smears and sections of tissue. The ulceration usually involves the skin and deeper tissues of the abdominal wall and is characterized by rapid spread, an irregular border, a dusky red advancing halo beyond the margin of the ulcer, pain and extreme tenderness on pressure, and indolent granulation tissue forming the floor of the ulcer. Two cases were recently reported by Engman and Meleney (*Arch. Dermat. & Syph.* **24**:1 [July] 1931) in which the ulcerations developed following a resection of the colon and after drainage of an amebic abscess of the liver, both of which were fatal

Emetine hydrochloride is the accepted treatment, either subcutaneously or intravenously in daily doses of from one-third to 1 grain (0 02 to 0 065 Gm) but should not be given for more than eight days on account of the danger of cumulative action Serious toxic reactions have been reported, such as vomiting diarrhea, abdominal pain, peripheral neuritis, acute nephritis hemoptysis, collapse and death Most of the manufacturers prepare ampules for intravenous injection

Extirpation, preferably with the electrocautery, might be undertaken in the early stage of the ulceration to prevent its spread

NAMES OF BARBITAL COMPOUNDS

To the Editor —In The Journal, June 4, on page 1994, ten or twelve lines from the top, occur the words "pentobarbital, amytal, phenobarbital pernocton and sodium barbital " I cannot find an accurate definition in my books of these term, nor does the druggist know them I should like to know their trade names and synonyms lest I confuse them in prescribing

M D , Palmyra, Mo

Answer —New and Nonofficial Remedies, issued by the Council on Pharmacy and Chemistry, contains descriptions of Pentobarbital-Sodium (pentobarbital is not marketed as such only as the sodium salt), Amytal, Phenobarbital and Barbital Sodium Phenobarbital is official in the U S Pharmacopeia Sodium Barbital is a synonym for Barbital Soluble U S P It is strange that a pharmacist would not keep in his possession the latest Pharmacopeia in order to be able to recognize official preparations New and Nonofficial Remedies would be serviceable to both the pharmacist and the correspondent

Pernocton is stated to be a 10 per cent solution of the sodium salt of the secondary butyl-beta-bromallyl barbituric acid The Council on Pharmacy and Chemistry has declared Pernocton not acceptable for New and Nonofficial Remedies for lack of critical evidence that routine intravenous injection of potent narcotics is desirable or safe (The Journal, Oct 3, 1931, p 1001)

A list of the better known barbital derivatives and the trade names of some was given in one of the series of articles on the "Indispensable Use of Narcotics" (Chemistry of Barbital and Its Derivatives, The Journal, May 30, 1931, p 1869)

ASTRINGENT EFFECTS ON MUCOUS MEMBRANES

To the Editor —Kindly advise me what, if any, other drug has the same action on mucous membrane as solutions of silver nitrate I mean its discoloration of skin and fabric, and its bad effect on the plating of instruments Will a solution of zinc chloride produce the same results? If not, can you suggest some other drug that will? Please omit name

M D , Illinois

Answer —The action on mucous membrane of silver nitrate solutions is dependent chiefly on the astringent qualities of these solutions While there is some antiseptic quality, this may in a large part be considered negligible In view of the disagreeable qualities of silver nitrate, other astringents may be used Zinc chloride is among them So, too, are solutions of antipyrine from 0 5 to 1 per cent strength Copper sulphate may also be used topically in strengths of from 1 to 2 per cent For irrigation, as in the nose, strengths of 1 2 000 to 1 3 000 are better borne

DOSAGE OF SCARLET FEVER TOXIN FOR IMMUNIZATION

To the Editor —Immunization of adults against scarlet fever is successful when 500, 2,000, 8,000, 25,000 and 80,000 skin test doses of scarlet fever toxin at weekly intervals are given to known Dick positive persons Will you please tell me the corresponding dosages for children of 2, 4 and 6 years of age? Please omit name

M D , Chicago

Answer —The dosage of scarlet fever toxin employed for immunizing children 2, 4 and 6 years of age is the same as that employed for immunizing adults

TREATMENT OF BUBO

To the Editor —Allow me to ask what is the recognized treatment for unilateral bubo after suppuration has taken place Please omit name

M D , California

Answer —The recognized treatment for unilateral bubo after suppuration has taken place is incision and drainage

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board for Ophthalmic Examinations Montreal, Sept 19 Sec , Dr William H Wilder, 122 S Michigan Ave , Chicago

American Board of Obstetrics and Gynecology The examination will be held in nineteen different cities in the United States and Canada Oct 22 Sec , Dr Paul Titus, 1015 Highland Bldg , Pittsburgh

American Board of Otolaryngology Montreal, Sept 17. Sec , Dr W P Wherry, 1500 Medical Arts Bldg , Omaha

Arizona Phoenix, Oct 3 Acting Sec , Dr Jos M Greer, Professional Bldg , Phoenix

California *Reciprocity* Los Angeles and San Francisco Sept 21 *Regular* Sacramento, Oct 17 20 Sec , Dr Charles B Pinkham, 420 State Office Bldg , Sacramento

Colorado Denver, Oct 4 Sec Dr William Whitridge Williams, 422 State Office Bldg , Denver

Connecticut *Basic Science* New Haven, Oct 8 Prerequisite to license examination Address, State Board of Healing Arts, 1895 Yale Station New Haven

Idaho Boise, Oct 4 Dir , Bureau of License, Mr F L Cruikshank, Boise

Illinois Chicago, Oct 18 20 Supt of Registration Mr Paul B Johnson, Springfield

Michigan Lansing Oct 11 13 Sec Dr Nelson McLaughlin 1010 Maccabee Bldg , Detroit

Minnesota *Basic Science* Minneapolis Oct 4 5 Sec , Dr J Charnley McKinley, 126 Millard Hall University of Minnesota Minneapolis *Regular* Minneapolis Oct 18 20 Sec , Dr E J Engberg, 524 Lowry Medical Arts Bldg , St Paul

Montana Helena, Oct 4 Sec , Dr S A Cooney Power Block Helena

Nebraska *Basic Science* Lincoln Oct 4 5 Dir , Bureau of Examining Boards, Mrs Clark Perkins, State House, Lincoln

New Jersey Trenton, Oct 18 19 Sec , Dr James J McGuire, 1101 Trenton Trust Bldg , Trenton

New Mexico Santa Fe, Oct 10 11 Sec , Dr P G Cornish, Jr 221 W Central Ave , Albuquerque

New York Albany, Buffalo New York and Syracuse Sept 19 22 Chief Professional Examinations Bureau, Mr Herbert J Hamilton 315 State Education Bldg , Albany

Tennessee Memphis, Sept 29 30 Sec Dr Alfred B DeLoach, Medical Arts Bldg , Memphis

Wyoming Cheyenne Oct 3 Sec , Dr W H Hassed Capitol Bldg , Cheyenne

Nebraska June Report

Mrs Clark Perkins, director, Bureau of Examining Boards, Nebraska Department of Public Welfare, reports the written examination held in Omaha, June 9-10, 1932 The examination covered 10 subjects and included 92 questions Fifty-four candidates were examined all of whom passed The following colleges were represented

PASSED

College	Year Grad	Per Cent
Creighton University School of Medicine	(1930)	81 9,
(1931) 79 85 1, 85 7, (1932) 79 9, 82 3, 83 7 83 8, 84 1, 84 3, 85, 85 9, 87 3 87 5, 88 4		
University of Nebraska College of Med (1928) 80 8	(1929)	86 2,
(1931) 80, 85 8, (1932) 79 9, 80 5, 81 4, 81 7, 81 9 82 3, 82 4, 82 5, 82 5, 82 5 82 8, 82 8, 83 2, 83 2, 83 8 84 1 84 3, 84 7, 84 7, 85, 85 1 85 2, 85 9, 86, 86 86, 86 1, 86 1, 86 1, 86 4, 87 9, 87 9 88 6, 88 8, 93 4		

Mrs Perkins also reports 5 physicians licensed by reciprocity with other states from Feb 10 to June 20 1932 The following colleges were represented

LICENSED BY RECIPROCITY

College	Year Grad	Reciprocity with
State University of Iowa College of Medicine	(1929)	Iowa
University of Michigan Medical School	(1928)	Michigan
St Louis University School of Medicine	(1917)	Missouri,
(1926) North Dakota		
Columbia University College of Phys and Surgs	(1925)	Minnesota

Maine July Report

Dr Adam P Leighton, Jr , secretary, Maine Board of Registration of Medicine, reports the written examination held in Augusta, July 5-6, 1932 The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass Fourteen candidates were examined, all of whom passed Six physicians were licensed by reciprocity with other states and one physician was licensed by endorsement The following colleges were represented

PASSED

College	Year Grad	Per Cent
Boston University School of Medicine	(1932)	82 7, 82 7, 88 5
Tufts College Medical School	(1931)	82 4, 85 3, 85 5, 87 9
Columbia University College of Phys and Surgs	(1904)	83 1
Jefferson Medical College of Philadelphia	(1932)	87 8
Laval University Faculty of Medicine	(1932)	83 5

McGill University Faculty of [illegible]	[illegible]1932)	84 2
University of Montreal Faculty [illegible]	[illegible]1932)	78 2
University of Jena Faculty of [illegible]	[illegible]1928)	80 9

College LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
George [illegible] of Medicine	(1929)	Dist Colum
Rush [illegible]	(1930)	Wisconsin
Tufts [illegible]	(1917)	Colorado
Univer[illegible]edicine	(1925)	Penna.
Univer[illegible] College of Medicine	(1931)	Vermont
University of Virginia Department of Medicine	(1930)	Virginia

College LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Harvard University Medical School	(1930)	N B M Ex

Book Notices

The Wisdom of the Body. By Walter B Cannon, M D, Sc D, LL D, George Higginson Professor of Physiology, Harvard Medical School Cloth Price, $3 50 Pp 312, with 41 illustrations New York. W W Norton & Company, Inc, 1932

Dr. Cannon's views on homeostasis have been repeatedly considered in the editorial columns of The Journal. There are within the human body numerous stabilizing devices tending to maintain and to restore normality. There is an automatic mechanism for maintaining a constant supply of water, salt, sugar, proteins and fat. There are, moreover, factors of safety and of defense, as well as mechanisms for repair Most of the chapters of Dr Cannon's book concern these mechanisms as they are involved in relationship to specific substances. His concluding chapter indicates similar forces in biology and in social life. The living human organism suggests that stability is of prime importance Thus it teaches a lesson to the social organism. The volume represents a sound and philosophical summary of human physiology

Entstehung, Erkennung und Behandlung innerer Krankheiten. Band I: Die Entstehung innerer Krankheiten: Pathologische Physiologie. Von Dr. Ludolf Krehl Fourteenth edition Paper Price, 39 60 marks Pp 716 Berlin F C W Vogel, 1932

The previous edition of Krehl's volume on clinical pathology was published two years ago as the center piece of a treatise on principles for the practice of internal medicine Since then the second part has been published. Although the finished textbook that has been promised by the author has not yet become available, a new edition of its first portion has been necessary to meet the steady demand for this standard book However, physicians have been accustomed for years to new editions of this clinical pathology The habit became well rooted probably before the ultimate destiny of the volume as one segment of a larger work was foreseen by the author And now its new title is also becoming familiar. In this new, thorough and conscientious revision the long experience of Professor Krehl in such tasks is conspicuous There are no radical changes anywhere, in fact, they are not numerous, and are spread out quite evenly in the different chapters As usual, they consist of brief conservative references to and comments on recent investigations and modified opinions.

An Introduction to Dermatology. By Richard L Sutton, M D, Sc D LL D, Professor of Diseases of the Skin, University of Kansas School of Medicine, and Richard L Sutton, Jr, A M, M D, Visiting Dermatologist to the Kansas City General Hospital Cloth Price, $5 Pp 565, with 183 illustrations St Louis C. V Mosby Company, 1932

This is virtually a condensed form of the eighth edition of Sutton's "Diseases of the Skin" Intended primarily for students, it should well serve that purpose It is rich in good illustrations, is well indexed, and is concise and clear The format is excellent; to each of the conditions more rarely encountered, the authors devote a short paragraph. The disorders of common occurrence are more fully and adequately considered. The treatment recommended is rational and the prescriptions are simple and of a kind that can be readily dispensed. The first part of the book is devoted to the principles of dermatology, anatomy, physiology, pathology, etiology and treatment, and includes also a topographic classification which should be of service to the student. Newer subjects, such as allergy and bacteriophage therapy, are included The book is a sound, conservative work that should serve as a useful introduction to dermatology.

Pathologie und Therapie der Erkrankungen des Kehlkopfes, der Luftröhre und der Bronchien. Von Prof Dr. M. Hajek, Vorstand der Universitätsklinik für Kehlkopf-, Nasen- und Ohrenkrankheiten in Wien Abteilung II Paper Price, 60 marks. Pp 193-432, with 123 illustrations Leipzig · Curt Kabitzsch, 1932.

The second section of this work, the first portion of which was reviewed recently, continues in the middle of a sentence of the previous section in the chapter on the differential diagnosis of diphtheria. The condition of the pharynx, larynx and trachea in other acute diseases, such as typhoid, influenza and glanders, is described in detail. An interesting chapter is devoted to diseases of the larynx and treachea with their various dermatoses. This is followed by a complete section on tuberculosis of the upper air passages. Then follow topics such as syphilis, leprosy and rhinoscleroma The section on the injury of the larynx, trachea and bronchi is followed by a fairly complete chapter on foreign bodies in the respiratory tract as well as the treatment of stenoses of the larynx, trachea and bronchi It is in the chapter on disturbances of innervation of the larynx that this volume ends in the middle of a sentence in the same manner as occurred in the first section. The arrival of the third and final section is anticipated with much pleasure in view of the fact that the second section shows the same high standard of print and illustrations as did the first.

The Art of Being a Woman. By Olga Knopf Edited by Alan Porter. Cloth Price, $3 Pp 307 Boston Little, Brown & Company, 1932

The background of this book is training in medicine, physiology and adlerian psychology. The book begins with a brief survey of woman's position in society through the ages and particularly the importance of the inferiority complex in an earlier day. The second part is an analysis of adolescents in which incidentally there comes a consideration of the causes of prostitution, with which, however, few authorities will agree. The author takes it for granted that the initial motive is a desire for pleasure and the secondary motive a desire to make money. The book is rather opposed to prohibition, feeling that it makes indulgence in liquor a goal. There are also considerations of homosexuality and its causes. The reasons for failure of most women to marry are given most careful consideration, and also the factors underlying marriage. The points are covered again in the section on sexual adaptation and on the married woman The concluding chapters of the book deal with the elderly woman, women in industry and the means of explaining sex to children. The volume concludes with a plea to women to stop suffering with an inferiority complex and to think they are equals of men, independent and cooperative, even if they are not. Few American women will need this advice

Vaccination préventive de la tuberculose de l'homme et des animaux par le B C G. Rapports et documents provenant des divers pays (la France exceptée) transmis à l'Institut Pasteur en 1932 Paper Pp 366 Paris Masson & Cie, 1932

This volume opens with a reiteration of previous statements on the harmlessness of B C G, supported by citations of numerous official endorsements by scientific societies and congresses during the last four years. A summary of reports of animal experiments and clinical experience up to 1932 is presented Recent experience in guinea-pigs, rabbits and monkeys on the whole supports the original claims of Calmette and his associates on successful preventive inoculation in these animals. Reports of equal success in the vaccination of cattle in several countries are given Chief opposition to the method is found in North America Calmette attributes this opposition largely to the organization of the tuberculosis eradication campaign on this continent, which is based on the tuberculin test. Widespread use of B C G in cattle and the consequent artificial production of reactors would prove confusing. Calmette feels that, successful as the campaign has been in this country, a revision of the method, to include vaccination, would be advantageous Up to 1932 about a million children had been vaccinated, about two thirds of them in France or the French colonies. About 400 necropsy protocols, a surprisingly small number in so large a vaccinated group, appear to be on record. These indicate no progressive lesions from the B C G, although in numerous cases the organism could be isolated from lymph nodes. Some remarkable cases of accidental overdosage or intentional large dosage in congenital defectives, without harm, are reported. A final summary is presented of the mortality in 443,656 children in 46 countries outside of France, indicating a death rate of 7.9 per cent in the vaccinated and 15.3 per cent in the nonvaccinated in the first year of life. To an unbiased reader the argument for the harmlessness of the method seems convincing. Variation in the selection of material, however, still makes an evaluation of the success of the method as a preventive procedure difficult to make.

Law and Literature and Other Essays and Addresses. By Benjamin N. Cardozo, Chief Judge of the Court of Appeals of New York. Cloth. Price, $2.75. Pp. 190. New York: Harcourt, Brace & Company, 1931.

The newly appointed member of the Supreme Court of the United States has made available in book form a number of essays on various subjects, mostly related to law. Of most interest to the physican is the essay entitled "What Medicine Can Do for Law." It indicates a thorough appreciation of the nature of scientific evidence and of the fact that the medical profession of this country is best fitted to supply such evidence in the medical field. Judge Cardozo is inclined to believe that the teachings of biochemists, of psychiatrists and of penologists will transform our whole system of punishment for crime at no distant day. He also finds a necessity for study and education of the criminal. He feels the need for reform in the determination of insanity and points out that this reform must come in legislation rather than in court procedure.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Die gesunde und kranke Wirbelsäule im Röntgenbild: Pathologisch-anatomische Untersuchungen. Von Geh. Med.-Rat Prof. Dr. Georg Schmorl. Für die Röntgenkunde bearbeitet von Dr. med. Herbert Junghanns. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband XLIII. Herausgegeben von Prof. Dr. Grashey. Paper. Price, 30 marks. Pp. 211, with 345 illustrations. Leipzig: Georg Thieme, 1932.

This is a monograph on the pathologic anatomy of the vertebral column, presented with an extensive bibliography. The illustrations emphasize especially the developmental defects encountered in the spinal column. Phases of the intervertebral disk are dealt with at length. The vast amount of anatomic material at the disposal of Dr. Schmorl and the variety of lesions described in such an authoritative manner make the monograph invaluable to all interested in spine lesions, especially the roentgenologist and the orthopedic surgeon.

The Home Nurse's Handbook of Practical Nursing: A Manual for Use in Home Nursing Classes in Young Women's Christian Associations, in Schools for Girls and Young Women, and a Working Text-Book for Mothers, "Practical" Nurses, Trained Attendants, and All Who Have the Responsibility of the Home Care of the Sick. By Charlotte A. Aikens, R.N. Fifth edition. Cloth. Price, $2. Pp. 331, with illustrations. Philadelphia: W. B. Saunders Company, 1931.

This volume has passed through five editions and numerous reprintings, probably because it is one of the most practical books in this field. It is, furthermore, a thorough consideration of its subject. It includes not only numerous hints on preventive medicine but a great deal of helpful material on the care of the sickroom, care of the invalid, dietetics, methods of giving remedies, bandaging, first aid, and nursing in general. The illustrations unfortunately have not been as carefully revised as has the text. There is not the slightest reason for showing home nurses Peyer's patches or the appearance of a culture of tubercle bacilli. The majority of the pictures are, however, attractive.

A Bibliography of the Honourable Robert Boyle, Fellow of the Royal Society. By John F. Fulton, M.A. Paper. Pp. 172, with a portrait. Oxford: University Press, 1932.

This compilation of the writings of Boyle can be of interest solely to the special student who is willing to undertake the formidable task of assessing Boyle's scientific achievements. The main body of the volume lists chronologically not only the appearance of the various books but also the various editions of these books, location of the copies, and facsimiles of the title pages. In each case the history of the book and the nature of its more important contents are indicated. This volume was certainly a herculean task involving, figuratively speaking, an infinite number of hours of the most patient type of scholarly labor—surely an all-absorbing occupation which few real scholars possess. Having erected the solid foundations for the scientific evaluation of Boyle's scientific career, the author might well make the scientific assay, for no one else is better qualified to do so.

The Lame, the Halt, and the Blind: The Vital Rôle of Medicine in the History of Civilization. By Howard W. Haggard, M.D., Associate Professor of Applied Physiology, Yale University. Cloth. Price, $4. Pp. 420, with 200 illustrations. New York & London: Harper & Brothers, 1932.

Most of the essays in this book were prepared by the author for the Medical Division of the Eastman Kodak Company and presented by him over the radio during the Eastman Hour. The essays touch every aspect of medicine from an historical point of view and are likewise related to current trends, since many of the notions of the past are in the credulities of the present. The book is handsomely illustrated with numerous historical items and has an exceedingly good index. For collateral reading in medicine, it is delightful. If any criticism at all is to be made of the book, it is for the lack of any orderly arrangement or system to bind the essays together.

The Cambridge Medical School: A Biographical History. By Sir Humphry Davy Rolleston, Bart., G.C.V.O., K.C.B., M.D., Regius Professor of Physic in the University of Cambridge. Cloth. Price, $5. Pp. 235, with 21 portraits. Cambridge: University Press, 1932.

This book contains an interesting account of Cambridge in its vicissitudes and its glory, giving a description of the medical school from its beginning to the present day. The various departments (anatomy, physiology, biochemistry, experimental psychology, pathology, biology, physic) are taken up in separate chapters. There are portraits of those who added much to the glory of the institution, including such men as Caius, Heberden, Sir Michael Foster, Langley, Gaskell, Roy, Kanthack, Woodhead, Clobery, Glisson, Paget and Allbutt.

Twenty-Five Years: A Memorial Volume in Commemoration of the Twenty-Fifth Anniversary of the Vineland Laboratory, 1906-1931. Edited by Edgar A. Doll, Ph.D., Director of Research. Series 1932, No. 2. Fabrikoid. Pp. 135. Vineland, N. J.: Training School at Vineland, New Jersey, Department of Research, 1932.

This book is published in commemoration of the twenty-fifth year celebration of the establishment of the Vineland Laboratory and School for Training of the Feeble-Minded. It includes the addresses delivered on that occasion, with a record of the personnel and publications since the institution was established. The essays include, among others, contributions by Gesell on "The Study of Genetic Psychology," by Edgar A. Doll on "The Outlook for Further Research," and by Earl Barnes on "Child Research and Social Progress."

Landois' Lehrbuch der Physiologie des Menschen, mit besonderer Berücksichtigung der praktischen Medizin. Bearbeitet von Dr. med., Dr. phil. h. c. R. Rosemann, o. ö. Professor der Physiologie und Direktor des Physiologischen Instituts der Westfälischen Wilhelms-Universität zu Münster. Twentieth edition. Paper. Price, 22.50 marks. Pp. 850, with 168 illustrations and one portrait. Berlin: Urban & Schwarzenberg, 1932.

The nineteenth edition of this book was reviewed in THE JOURNAL, Jan. 4, 1930, page 56. Aside from an eight page increment, the plan and execution are the same as in the previous edition. Valuable as a scientific textbook, it may be recommended particularly to physicians and graduate students of medicine who desire to read with profit while reviewing their knowledge of German.

Poems of Science. By William Pallister, B.A., M.D., C.M. Cloth. Price, $2.50. Pp. 248, with 17 illustrations. New York: Playford Press, 1931.

The author of this volume studied physics, bacteriology and pathology under competent teachers. His volume is a combination of essays and poems on the nature of things, on man and the stars, and on many other scientific subjects. The poems prove quite perfectly that scientific diction does not lend itself easily to poetical manipulation.

The Structure of Insanity: A Study in Phylopathology. By Trigant Burrow, M.D., Ph.D. (Psyche Miniatures, General Series No. 40). Boards. Price, 2/6. Pp. 80. London: Kegan Paul, Trench, Trubner & Company, Ltd., 1932.

This essay presents Dr. Burrow's views on the social relationships of insanity and the necessity for studying the morphologic data involved in the distortion of man's attention as a social process.

Medicolegal

Patient's Wealth and Physician's Fee

(Glenn v. Thompson (Mo.), 45 S. W. (2d) 948)

The plaintiff removed the defendant's prostate gland and attended him over a period of forty-one days, never visiting him less than twice a day and often three and four times a day. He rendered a bill for $1,050. The defendant thought $500 a sufficient fee, paid that amount, and the plaintiff sued him for the balance. The trial court excluded testimony tending to show the defendant's financial ability to pay and, at the request of the defendant, charged the jury as follows

> The court instructs the jury that the financial ability or inability of the defendant to pay plaintiff the reasonable value of the services cannot be considered by the jury or taken into consideration in determining the reasonable value of such services as the jury may find under the evidence were rendered defendant by the plaintiff

The jury returned a verdict for the defendant, and the plaintiff appealed to the St. Louis court of appeals

In excluding evidence as to the defendant's wealth and in instructing the jury as it did, the trial court erred, said the appellate court. A usage and custom in the profession, in fixing the fee for an operation, to give some consideration to the ability of the patient to pay, was testified to by witnesses both for the plaintiff and for the defendant, said the court That fact, therefore, must have been in the contemplation of the parties when the service was rendered, and necessarily must be one of the elements to be considered on a trial which proceeded on that theory Furthermore, witnesses for the defendant testified that a reduction in fee is generally made in case a patient is unable, financially, to pay the usual fee Evidence of the defendant's wealth was admissible, therefore, to show that he was not entitled to such a reduction The defendant's family physician, who referred the defendant to the plaintiff, in testifying for the defendant, admitted that the practice of physicians was to charge varying fees for the same class of operations, and that the charge for an operation such as the *one* involved in this case varies from nothing to $3,500, depending somewhat on the ability of the patient to pay. This physician, said the court, must have realized that his patient was in a critical condition and that immediate attention by a skilled surgeon was essential He must have known, continued the court, that the case was one that justified the risk of a higher charge by a surgeon of known skill and must have had some idea as to the defendant's ability to pay for the kind of service he was seeking For error committed by the trial court in refusing to admit evidence as to the financial ability of the defendant to pay the fee charged and in instructing the jury as it did, the judgment in favor of the defendant was reversed and the case remanded

Abdominal Pregnancy, Accident and Therapeutic Abortion.—The appellee, Mrs Sieber, was injured in an accident, September 8 She was operated on, October 17, and an abdominal pregnancy of three months' duration was discovered In a suit against the appellee, Abend, she contended, among other things, that by reason of the accident she was caused to "suffer a miscarriage" The trial court gave judgment for Mrs Sieber, and Abend appealed to the Court of Appeals of Maryland There was no evidence, said the court, that the accident had anything to do with the abortion and none to show that an abortion would not have been necessary even if the accident had not occurred at all. When an injury for which damage is claimed, in this case an operation for extra-uterine pregnancy, follows in point of time the accident for which suit is brought, and the subsequent development usually has its peculiar and independent cause, then the original accident as the exciting cause of the ultimate effect must be affirmatively shown. This was not done in this case. When disease or infection is set in motion or aggravated by injury or when the accident may be followed by disease or injury as its cause, damages may be recovered for such unexpected results, but in every instance proof of such facts is required and nothing is assumed The proof of the effect of the accident on the extra-uterine pregnancy was a matter, the court said, to be testified to by one skilled in medicine or surgery. No such witness testified. The judgment of the trial court, in favor of Mrs. Sieber, was therefore reversed and the case remanded for a new trial.—*Abend v. Sieber (Md.), 158 A. 63.*

Expert Testimony Based on Roentgenogram Not in Evidence.—In proceedings before the Oklahoma Industrial Commission, a physician testified that he had taken a roentgenogram of the claimant's spinal column. The roentgenogram was not offered in evidence but the physician was permitted, over the objection of the employer and his insurance carrier, to testify as to the condition indicated by the roentgenogram The roentgenogram, said the Supreme Court of Oklahoma, was the best evidence as to what it indicated. Ordinarily a roentgenogram must be explained or interpreted by a medical expert The witness was competent to do so, but the employer and his insurance carrier were entitled to examine the roentgenogram for the purpose of cross-examining the witness, and, if they so desired, were entitled to submit it to other experts for interpretation. The physician should not have been permitted to testify unless the roentgenogram was offered in evidence or some proper reason given why it could not have been produced —*Patrick & Tillman v. Matkin (Okla.), 7 P. (2d) 414.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Montreal, Sept 19-23 Dr William P Wherry, 1500 Medical Arts Building, Omaha, Neb, Executive Secretary

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, French Lick, Indiana, Sept. 12-14 Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American Association of Railway Surgeons, Chi [illegible] Louis J Mitchell, 29 East Madison Street,

American College of Surgeons, St Louis, Oct [illegible] H Martin, 40 East Erie Street, Chicago, Director General

American Hospital Association, Detroit, Sept. 12-16. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Detroit, September 28-30 Dr C C Vinton, 241-02 S Conduit Blvd, Rosedale, N. Y, Secretary

American Public Health Association, Washington, D C, October 24-27 Dr Kendall Emerson, 150 Seventh Avenue, New York, Acting Executive Secretary

American Roentgen Ray Society, Detroit, September 27-30. Dr Eugene P Pendergrass, 3400 Spruce Street, Philadelphia, Secretary

Associated Anesthetists of the United States and Canada, New York, October 17-21 Dr F H McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association of Military Surgeons of the United States, Hartford, Conn, October 20-22 Dr J R Kean, Army Medical Museum, Washington, D C, Secretary

Central Association of Obstetricians and Gynecologists, Memphis, Tenn, September 15-17 Dr E D Plass, University Hospital, Iowa City, Secretary

Delaware, Medical Society of, Lewes, *September 27-28* Dr W. O La Motte, 604 Medical Arts Building, Wilmington, Secretary

Idaho State Medical Association, Pocatello, Sept. 16-17. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, Michigan City, September *27-29* Mr F A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary

Inter-State Postgraduate Medical Association of North America, Indianapolis, October *24-28* Dr W B Peck, 12½ East Stephenson Street, Freeport, Ill, Managing Director.

Kentucky State Medical Association, Louisville, October 3-6. Dr. A T McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Kalamazoo, Sept 13-15 Dr. F C Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary

Nevada State Medical Association, Reno, Sept. 23-24 Dr. Horace J Brown, 120 North Virginia Street, Reno, Secretary

Northern Minnesota Medical Association, Crookston, Sept 19-20 Dr O O Larsen, Detroit Lakes, Secretary

Oregon State Medical Society, Klamath Falls, Sept 22-24 Dr. Albert W Holman, 410 Taylor Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, October 3-6 Dr Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary

Southern Minnesota Medical Association, Rochester, Sept 12 Dr. M. C Piper, Mayo Clinic, *Rochester*, Secretary

Utah State Medical Association, Ogden, Sept 15-17. Dr Leland R Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, October 6-7. Dr. William G Ricker, 31 Main Street, St Johnsbury, Secretary

Virginia, Medical Society of, Richmond, November 1-3 Miss Agnes V Edwards, 104½ West Grace Street, Richmond, Secretary

Washington State Medical Association, Tacoma, Sept 12-14 Dr. Curtis H Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept 14-16 Mr J G Crownhart, 119 East Washington Avenue, Madison, Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days Issues of periodicals are kept on file for a period of five years only Requests for issues of earlier date cannot be *filled* Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested) Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them

Titles marked with an asterisk (*) are abstracted below

American Journal of Diseases of Children, Chicago

43: 1433 1653 (June) 1932

*Respiratory Failure in Poliomyelitis Treatment with Drinker Respirator J L Wilson, Boston —p 1433

*Seasonal Variation in Antirachitic Action of Arkansas Sunshine P L Day, Little Rock, Ark —p 1455

*Treatment of Congenital Syphilis with Acetarsone (Stovarsol) Given by Mouth C H Maxwell, Jr, Auburn, N Y, and J Glaser, Rochester, N Y —p 1461

Psychic Enuresis in Normal Children Experimental Study J M Lewis and J Ostroff, New York —p 1490

*Adenoids and Immunity H B Lemere, Los Angeles —p 1494

Study of Effects of Ultraviolet Irradiation on Group of Preschool Children Preliminary Report Helen Dudley Bull, G H Maughan and Ethel B Waring, Ithaca, N Y —p 1502

*Antirachitic Value of Milk from Cows Fed Irradiated Yeast E T Wyman and A M Butler, Boston —p 1509

Study of Water and Mineral Balances in Epileptic Children I Effects of Diuresis, Catharsis, Phenobarbital Therapy and Water Storage I McQuarrie, Minneapolis, and R C Manchester and Clara Husted, Rochester, N Y —p 1519

Respiratory Metabolism in Infancy and in Childhood XIV Effect of Thyroid Therapy on Metabolism of Protein in Normal Infants L E Weymuller, Brooklyn, T C Wyatt, Syracuse, N Y, and S Z Levine, New York, with technical assistance of M Kelly —p 1544

Ganglioneuroma Report of Two Cases with Review of Literature J A Bigler and A Hoyne, Chicago —p 1552

Respiratory Failure in Poliomyelitis.—Wilson reports that in six children suffering from poliomyelitis who had paralysis of the intercostal muscles and the diaphragm without complications (such as pneumonia), the Drinker respirator was efficient in maintaining pulmonary ventilation for long periods A therapeutic trial of the respirator seems desirable as soon as possible after any reduction of the vital capacity is discovered which is due to weakness of the respiratory muscles Marked dyspnea or cyanosis should not be awaited as indications for initiation of treatment The action of the respirator seemed very effective in two children with bulbar paralysis without intercostal involvement who had a sudden complete cessation of respiration after choking The use of the machine seemed sometimes helpful but was often entirely ineffective in nine children with bulbar paralysis, without intercostal involvement, who had a disturbed central control of respiration manifested by irregular breathing Only two of these nine children lived The use of the machine in cases of bulbar paralysis without intercostal involvement is not recommended except as an emergency and after every attempt has been made to free the pharynx from secretions It was not always possible to foretell accurately the effectiveness of the respirator before therapeutic trial Except for moderate emphysema found at necropsy in three patients with bulbar paralysis, no evidence of harm due to the use of the machine was discovered

Antirachitic Action of Sunshine.—Day made biologic determinations of the antirachitic action of sunshine at Little Rock at all times of the year with large groups of animals under carefully controlled conditions The average daily amount of sunshine necessary to afford the same partial protection against rickets in rats receiving a rachitic diet varied from 5 minutes in May, June and July to 168 minutes in December, with intermediate values for the other months

Treatment of Congenital Syphilis with Acetarsone.—Maxwell and Glaser state that acetarsone probably has a definite place in the treatment for congenital syphilis That the drug cannot be used indiscriminately, as the reports from some foreign clinics might be interpreted to suggest, is amply demonstrated by the one fatality and the toxic manifestations that occurred in the authors' small series The advantages of the oral treatment for congenital syphilis over the methods usually employed are evident However, the exact position that acetarsone should occupy in the treatment for congenital syphilis, at least as far as this country is concerned, remains yet to be determined by those who have at their disposal sufficient clinical material for the study this drug deserves, and sufficient interest to follow their cases carefully, so that there will be a minimum of danger to the patients

Adenoids and Immunity.—Lemere calls attention to the fact that the adenoid is a physiologic and lymphatic structure with a definite form and admirably designed to expose the greatest possible lymphatic surface as a barrier to the entrance of nasal infection through the nasopharyngeal mucosa into the general circulation He reports that in a series of more than 300 children the adenoids were left at the time the tonsils were removed *Daily expulsive blowing exercises were insisted on* as after-treatment Nasal breathing improved, colds and sinus symptoms and acute and chronic aural conditions were less frequent

Pasteurized Yeast Milk.—Because of the possibility of difference in the specific factors *in viosterol and milk from cows* fed irradiated yeast and because there are certain advantages in the inclusion of the antirachitic factor in the food of infants rather than adding it as a separate therapeutic agent, Wyman and Butler studied the effectiveness of such "yeast milk" in the healing of active rickets in children They found that the special pasteurized yeast milk was an effective source of antirachitic substance as determined by its ability to cause healing in advanced active rickets in infants and advanced chronic rickets in children After five minutes' boiling, the milk still possessed antirachitic properties The administration of antirachitic vitamin in so palatable a form and in a food so essential and generally used as milk would seem to have certain advantages

Archives of Internal Medicine, Chicago

49: 879 1101 (June) 1932

*Treatment of Cardiovascular Syphilis Results Obtained in Fifty Three Patients with Aortic Aneurysm and in One Hundred and Twelve with Aortic Regurgitation J E Moore, Baltimore, J H Danglade, Kansas City, Mo, and J C Reisinger, Washington, D C —p 879

*Possible Relationship of Pancreatic Insufficiency to Addison Biermer (Pernicious) Anemia G Cheney and F Niemand, San Francisco —p 925

*Thiocyanate Therapy in Hypertension II Its Effect on Blood Pressure W Goldring and H Chasis, New York —p 934

Cinchophen Hepatitis Experimental Study H B Myers and L Goodman, Portland, Ore —p 946

*Absorption of Compound Solution of Iodine from Gastro Intestinal Tract, with Especial Reference to Absorption of Free Iodine B N E Cohn, Philadelphia —p 950

Immunity to Tuberculosis Relation of Cutaneous Allergy and Resistance to Tuberculous Infection Following Vaccination with B C G J Heimbeck, Oslo, Norway —p 957

*Prolonged Use of Massive Doses of Urea in Cardiac Dropsy H R Miller and A Feldman, New York —p 964

Tryptophanuria and Its Significance Preliminary Report A T Brice, Jr, Palo Alto, Calif —p 978

Calcium Studies VII Calcium and Inorganic Phosphorus Content of Cerebrospinal Fluid and Blood Serum in Chronic Glomerulonephritis with Uremia A Cantarow, Philadelphia —p 981

Cardiac Output Following Artificial Pneumothorax in Man D W Richards, Jr, Constance B Riley and Mabelle Hiscock, New York —p 994

*Pancreatic Extract in Treatment of Angina Pectoris and Intermittent Claudication F R Nuzum and A H Elliot, Santa Barbara, Calif —p 1007

Some Factors Determining Insensible Perspiration of Man F G Benedict and H S H Wardlaw, Boston —p 1019

Clinical Significance of Volume and Hemoglobin Content of Red Blood Cell R L Haden, Cleveland —p 1032

Primary Cancer of Lung Clinical and Pathologic Survey of Fifty Cases W L Rogers, San Francisco —p 1058

*Streptococci in Blood in Rheumatic Fever, Rheumatoid Arthritis and Other Diseases Based on Study of Five Thousand Two Hundred and Thirty Three Consecutive Blood Cultures S S Lichtman and L Gross, New York —p 1078

Treatment of Cardiovascular Syphilis.—Moore and his associates present a general consideration of the subject of the treatment of cardiovascular syphilis, based on 53 patients with aortic aneurysm and 112 with aortic regurgitation In 20 of the 165 patients, the aneurysm or the aortic regurgitation had not caused symptoms and was accidentally discovered during routine physical examination The onset of symptoms was usually abrupt but sometimes was slow and insidious. All except 13 of the 165 patients in this series had been subjected to the strain of hard physical labor. The most frequent association with other lesions of syphilis was that with syphilis of the central nervous system (especially tabes dorsalis), which occurred in from 17 to 18 per cent of the patients. An additional 17 per cent of patients with cardiovascular syphilis, but without clinical evidence of neurosyphilis, had abnormal spinal fluids. The actual incidence of complicating neurosyphilis was thus about 35 per cent. Positive Wassermann reactions of the blood were obtained for 98 per cent of the patients with aneurysm and 96 per cent of those with aortic regurgitation. One hundred and forty-seven (89 per cent) of the patients had never received any treatment for syphilis before the development of cardiovascular syphilis. Of the remainder, not one had received adequate treatment for early syphilis. Only 4 of the 165 had received arsphenamine at the time of early syphilis, and none of these got more than three injections. These data constitute a powerful argument for the adequate treatment of early syphilis. They also indicate that modern antisyphilitic treatment is probably not responsible for the apparent increase in the incidence of syphilitic aortitis. From the analysis of their material, the authors conclude that properly supervised antisyphilitic treatment, with adequate general medical care, given to patients with aneurysm or aortic regurgitation, prolongs life, alleviates symptoms, maintains the ability to pursue a gainful occupation and reduces the period of incapacity.

Relationship of Pancreatic Insufficiency to Pernicious Anemia.—According to Cheney and Niemand, the present conception of Addison-Biermer anemia is that it is a deficiency disease due to an inadequate supply of a protein derivative necessary to normal maturation of red blood cells. As a result of successful experiments in feeding beef digested with normal human gastric contents to patients with Addison-Biermer anemia, Castle has concluded that the cause of the disorder is dependent on the gastric achylia. The nature of this supposed gastric defect has remained unproved, and he has termed it the unknown intrinsic factor. Recent studies of the gastric contents during fasting and duodenal contents strongly suggest that in cases of Addison-Biermer anemia there is a marked insufficiency of the pancreatic enzymes, notably trypsin, in addition to the gastric achylia. The macrocytosis characteristic of this anemia has also been frequently observed in pancreatic disorders. Feeding experiments performed by the authors, in which solutions of trypsin were used to digest beef, failed to produce any effect on the blood changes in cases of Addison-Biermer anemia. Feeding experiments in which an artificial gastric content containing hydrochloric acid, pepsin and trypsin was used to digest beef in three instances in two cases of Addison-Biermer anemia and in one instance in a case of sprue with a similar blood picture produced changes in the red blood cell count, hemoglobin determinations and reticulocyte response similar to those obtained by Castle. Changes in the average diameter of the red cells characteristic of a beginning remission after liver therapy occurred in these four instances and also in two others when very small amounts of trypsin were used. No other evidence of improvement in the blood changes was detected in the last two cases. The authors' feeding experiments show that beef digested by hydrochloric acid, pepsin and trypsin yields the erythrocytic maturation factor necessary to produce all the blood changes characteristic of a remission in pernicious anemia. The changes demonstrated are not as pronounced as those in adequate liver therapy but are on the whole more like those in inadequate treatment with liver. It seems probable that the protein derivative deficiency in Addison-Biermer anemia is due to a lack of both peptic and tryptic digestion. Trypsin would then represent the unknown intrinsic factor of Castle.

Thiocyanate Therapy in Hypertension.—Goldring and Chasis present data on fifty patients with hypertension subjected to seventy-four trials with thiocyanate therapy. In forty-six of these patients it was associated with chronic diffuse glomerulonephritis. Forty-four trials were made in the outpatient clinic and thirty with the patients confined to the hospital. Observations were made on the daily excretion rate of thiocyanate in the urine and the number of days necessary for its complete elimination after continuous medication and after a single dose in patients with essential hypertension and nephritic hypertension and in normal persons. Toxic effects of thiocyanate were not observed in four patients with chronic diffuse glomerulonephritis, three of whom responded by a satisfactory fall in blood pressure. Therapeutic, toxic or fatal effects could not be anticipated from the amount of the drug administered. The dosage found to be most effective in lowering blood pressure and least often attended by toxic manifestations was 0.326 Gm. (5 grains) given daily over a period of from fourteen to seventy-eight days. Thiocyanate was 31 per cent effective in lowering blood pressure in this series. Toxic manifestation occurred in thirteen patients, or 17 per cent, of the total group studied.

Absorption of Iodine from Gastro-Intestinal Tract.—Cohn reports studies on the rate of absorption of free iodine in aqueous solution, of diluted compound solution of iodine and of potassium iodide and potassium iodate from the gastro-intestinal tract of the dog. These studies show that the iodine is converted to iodide before it is absorbed. If these studies are applicable to the human being, they would seem to refute the assertion that compound solution of iodine is more beneficial than potassium or sodium iodide in controlling the high basal metabolism of exophthalmic goiter, since, when compound solution of iodine is used, the percentage of iodine absorption is no greater than when potassium or sodium iodide is administered.

Use of Urea in Cardiac Dropsy.—Urea administered in massive doses according to a method described by Miller and Feldman was found to be an effective diuretic over long periods of time in selected cases of cardiac dropsy. Whereas it can function alone over many months in keeping the patient edema-free, it may require the supplemental use of other diuretics. This is true for the patient with or without auricular fibrillation. Cases are reported in which its unbroken administration continued over three years. Urea does not impair the function of the kidneys or alter their histologic structure after prolonged administration. Once the signs of congestive heart failure have been removed, urea is valuable in preventing their recurrence. The drug tends to maintain the patient's weight at a low and constant edema-free level over months and even years. During such periods, the authors' patients often required little or no restrictions of the intake of fluid or salt within ordinary dietary limits.

Pancreatic Extract in Angina Pectoris and Intermittent Claudication.—An insulin-free extract of the pancreas, a vasodilator that modifies the pressor effects of epinephrine and dilates the coronary arteries of the rabbit's heart to a degree exceeding that produced by drugs of the purine group, was administered intramuscularly by Nuzum and Elliot to twenty patients with angina pectoris. Two, or 10 per cent, were not helped, five, or 25 per cent, were somewhat relieved, eleven, or 55 per cent, were greatly helped, and two who were benefited by treatment died later. Forty-one patients with angina pectoris who received the usual medical treatment and were followed for a like period were studied as a control series. In ten instances, or 24.3 per cent, no benefit was observed, fourteen patients, or 34.1 per cent, experienced moderate relief, fourteen received pronounced benefit, and three, or 7.4 per cent, died. Five patients with intermittent claudication, one with thrombo-angiitis obliterans and one with cerebral vascular spasms and angina pectoris were benefited in a pronounced degree by treatment with the extract.

Streptococci in Blood in Rheumatic Fever.—In a study of 5,233 consecutive blood cultures in a general hospital, Lichtman and Gross found that with adequately sensitive methods an incidence of nonhemolytic streptococcemia (alpha and gamma types) between 4 and 15.5 per cent with an average of 6 + per cent occurs in at least nine diseases, i. e., acute rheumatic fever with polyarthritis, chronic rheumatic cardiovascular disease, rheumatoid arthritis, aplastic anemia, pernicious anemia, leukemia, colitis, meningococcus meningitis and pyelitis and pyelonephritis. On the basis of the incidence of the "transient" streptococcemia alone, these organisms cannot justifiably be considered as the causative agents of these diseases.

Archives of Ophthalmology, Chicago

7: 831-1001 (June) 1932

- *Correction of Ptosis and Epicanthus. V. P. Blair, J. B. Brown and W. G. Hamm, St. Louis.—p. 831.
- Uveitis with Dysacousia, Alopecia and Poliosis. B. Rones, Baltimore. —p. 847.
- Lupus Erythematosus of Conjunctiva, Eyelids and Lid Margins. J. V. Klauder and P. DeLong, Philadelphia.—p. 856.
- *Some Notes on Orbital Tumors. B. Samuels, New York.—p. 868.
- Vitreous in Experimental Detachment of Retina. L. L. Mayer, Chicago. —p. 884.
- *Anterior Chamber Punctures in Relation to Intra-Ocular Tension: Clinical Study. S. V. Abraham, Los Angeles.—p. 888.
- *Postoperative Care Without Bandages. E. B. Rabkin, Kharkow, the Ukraine.—p. 901.
- Size and Shape of Ocular Images: III. Visual Sensitivity to Differences in Relative Size of Ocular Images of the Two Eyes. A. Ames, Jr., and K. N. Ogle, Hanover, N. H.—p. 904.
- Etiology of Strabismus. R. I. Lloyd, Brooklyn.—p 934.

Correction of Ptosis and Epicanthus.—Blair and his associates say that, in the absence of any action of the levator palpebrae muscle, the patient is apt to attain some elevation of the paralyzed lid by overaction of the occipitofrontalis muscle. This suggested that a direct fixation of the tarsus of the upper lid to the occipitofrontalis muscle would give much better elevation of the lid than does the simple continuity of the somewhat fixed tissues of the brow. Various plans have been proposed for doing this, but it is the authors' belief that the most satisfactory is the direct connection by means of a live tendon cut from autogenous tissue. For this purpose they have used thin strips of fascia lata, which will give permanent live and approximately natural connective tissue fixation. Even when previously inactive, this extra load may stimulate a lagging occipitofrontalis muscle to increased movement. Because congenital ptosis and epicanthus may occur in the same case, and the scar contraction that causes a traumatic epicanthus may also prevent proper elevation of the lid, the correction of epicanthus is considered with that of ptosis. Correction in the congenital type can usually be obtained by flap switching that adds vertical length at the expense of the transverse redundancy. In the traumatic type it may be necessary to use a skin graft or switch a flap from a distant site. Elevating a flat nasal bridge will help in appropriate cases.

Orbital Tumors.—Samuels presents a brief pathologic review of some of the tumors of the retrobulbar space, the so-called concealed tumors, including those of the optic nerve, all of which sooner or later produce exophthalmos. Attention is drawn more particularly to the manner in which the preexisting structures react to the presence of tumors rather than to the morphology of the tumors themselves. The theme is presented in the form of clinical cases that have yielded anatomic material for study.

Anterior Chamber Punctures in Relation to Intra-Ocular Tension.—Abraham states that animal and human experimental data on the effects of anterior chamber punctures are in agreement. This includes the changes in intra-ocular tension following withdrawal of the aqueous. The usual reaction of a normal eye to a withdrawal of the aqueous would be hyperemia, particularly of the ciliary body, and hypertonia. Hypotonia may result following withdrawal of the aqueous if the eye shows subnormal function, as in atrophies and amblyopia, or if the ciliary body is decreased in activity, as by atropine. In cases of primary glaucoma, intra-ocular tension following anterior chamber puncture and withdrawal of the aqueous may be higher than before puncture, may be lower than before puncture, though above normal, or may show no pathologic tension. In cases of secondary glaucoma the same condition may be present. No inflammatory or glaucomatous process seems necessary to obtain a high tension following withdrawal of the aqueous, even when no previous high tensions have been present. The hypertonia in normal eyes following anterior puncture may be as high as that found in pathologic conditions.

Postoperative Care Without Bandages.—According to Rabkin, a number of ophthalmologic clinics and hospitals in America and Europe are using simplified ocular dressings. This tendency may eventually lead to the use of the open method. In no case has there been any complication that could be attributed to the use of the open method. Indeed, there are certain advantages. The postoperative period is usually shorter and the patient more comfortable. No trauma of the eye has been observed, and the author does not believe it to be more frequent in the open method, if the patient has been sufficiently instructed. Apparently, the character of the bacterial flora is unchanged in the open method. Control and observation of the wound are easier, and time and work are saved. The author believes that this method deserves more consideration from ophthalmologists in general.

Archives of Otolaryngology, Chicago

15: 805-977 (June) 1932

- *Association of Osteomyelitis of Skull and Nasal Accessory Sinus Disease. A. O. Wilensky, New York.—p. 805.
- Graphic Method and Chart for Hearing Test with Tuning Forks. A. Roth, Brooklyn.—p. 834.
- Illumination of Ear: Short Historical Sketch. E. Amberg, Detroit. —p. 838.
- *Intratracheal Inhalation Anesthesia in Practice. P. J. Flagg, New York.—p. 844.
- *Pins at Periphery of Lung: Observations Based on Forty-Two Cases. C. Jackson and C. L. Jackson, Philadelphia.—p. 860.
- Calcigerous Metaplasia in Auricle: Report of Two Cases. J. H. Childrey, Santa Barbara, Calif.—p. 883.
- Suppurative Meningitis of Otitic and Nasal Origin: Its Relation to Blood Stream Invasion of Pial Vessels. W. P. Eagleton, Newark, N. J.—p. 885.
- Chronic Progressive Deafness, Including Otosclerosis and Disease of Inner Ear. J. K. M. Dickie, Ottawa, Canada.—p. 913.

Osteomyelitis of Skull and Nasal Accessory Sinus Disease.—Wilensky discusses the cases of osteomyelitis of the skull that are found to complicate acute and chronic disease of the nasal accessory sinuses. He considers only cases due to infection by the ordinary pyogenic bacteria. The clinical picture presented by the majority of these cases is similar. The infection that leads to the fatal result is usually postoperative and occurs within two or three days after an operation for disease of the nasal accessory sinuses. The diploe of the frontal bone is invaded by the organisms, and an osteomyelitis is set up. The infection spreads, on the one hand, through the outer table, giving rise to subperiosteal abscesses beneath the scalp; it passes inward, on the other hand, and may subsequently give rise to extradural or subdural abscess, general meningitis, cerebral abscess or a thrombosis of the longitudinal or other large sinuses. The dura mater is affected in practically all cases, and the pachymeningitis may remain localized a long time. Thrombosis occurs chiefly in the lateral or longitudinal sinuses. The invasion of a large venous sinus is often manifested by emboli with distant metastases. Pneumonia and bronchopneumonia occur frequently. It is generally easy to make a diagnosis of osteomyelitis in the bones near the orbit or ear. However, it is often difficult to recognize the diffuse form because the general symptoms are often more pronounced and may mask the local symptoms. A diagnosis can be made before operation from a careful study of the symptoms that accompany the sinusitis or mastoiditis. It is necessary to operate when the osteomyelitis becomes evident, and the operation should be as extensive as possible. The cranial bones should be resected beyond the limits of the lesion. If the wound continues to granulate and if the temperature remains high, sequestrums are present and they must be removed as completely as possible. There is a large mortality. The patient succumbs to one or more of these conditions with or without the manifestations of a general blood infection, as evidenced by the presence or absence of a positive blood culture, after a varying number of weeks or months ranging to one or more years.

Intratracheal Inhalation Anesthesia.—Flagg describes the technic of intratracheal inhalation anesthesia that he has used as a routine method in the last four years. In his hands, trauma has not followed this technic. He believes that this absence of trauma has been partly due to each of the following factors: adequate ether relaxation, elimination of preliminary medication (morphine and atropine), adequate exposure, lubrication of the tube and the use of a mouth gag when intubating. In this technic, adequate suction must always be available for the best results. In order to reduce the irritability and the diameter of the intubated element, a pharyngeal gauze pack is preferred to an intratracheal balloon. Irritation is caused by the pharyngeal pack unless care and lubrication are employed in placing it. Experience has shown that the cough spasm following intubation may readily be controlled and its effects promptly met. The technic of intratracheal inhalation provides a functioning equipment for artificial respiration in the case of respiratory failure. Routine cocainization was avoided, ether relaxation being employed instead. While any anesthetic agent may be employed, ether is the anesthetic of choice in the majority of cases. The opinion appears to be that intubation carried out in the manner prescribed by the author does not predispose to laryngeal tuberculosis in a case presenting pulmonary tuberculosis, and that the presence of the intratracheal tube through the facilities afforded for suction of the trachea provides one of the most efficient means of reducing postoperative morbidity in thoracic operations. It has been found that the method is indicated in all operations on the head and neck, and in any condition in which aspiration is to be avoided.

Pins at Periphery of Lung.—The Jacksons call attention to the fact that pins at the periphery of the lung are practically always lodged head downward. This may be due to the catching of the point and the tumbling over of the head end, and partly to the fact that the head end is the heavier. The primary cause of pins in the lungs is carelessness in putting pins in the mouth. The secondary etiologic factors are numerous. The cause of the pin reaching the periphery is a pawl and ratchet-like action of the pin; the head is free to move downward during inspiratory elongation of the bronchi, and the point catches and resists upward movement during the bronchial shortening of expiration and coughing. The limit of downward travel is the smallest bronchus that the head of the pin can enter. After the initial choking, gagging and coughing there is, in the case of pins at the periphery of the lung, a symptomless interval of a number of months. Sooner or later, however, suppurative changes, with productive coughing and progressively increasing impairment of health, supervene, and a fatal ending may eventually occur if the pin is not removed. All pins at the periphery of the middle and lower lobes and descending branches of the upper lobes can be removed through the mouth by peroral costophrenic bronchoscopy. The ascending branches of the upper lobes present great difficulties, but fortunately their invasion by pins is exceedingly rare.

Archives of Pathology, Chicago

13: 857-1021 (June) 1932

*Tumors of Muscle Type: Report of Group of Cases, with Especial Reference to Metastasis of Leiomyosarcoma of Brain. J. S. Cohen, Philadelphia.—p. 857.
Local Tissue Immunity. G. A. Pacheco, Chicago.—p. 868.
Stem Cell of Monocyte. J. F. Rinehart, Boston.—p. 889
Experimental Abscesses in Rabbit: Cytology and Drainage. E. T. Thorsness, Rochester, Minn.—p. 899.
Pharyngo-Esophageal Diverticulum with Subdiverticular Esophageal Stenosis, Foreign Body Impaction and Sudden Death: Report of Case. J. I. Tuell, Portland, Ore.—p. 905.
*Experimental Thrombo-Angiitis Obliterans: Bacteriologic and Pathologic Studies. B. T. Horton and Anna H. E. Dorsey, Rochester, Minn. —p. 910.
Combined Congenital Exstrophy of Female Urinary Bladder and Cloaca. G. A. Kernwein, Chicago.—p. 926.
Origin and Antiquity of Syphilis: Evidence from Diseased Bones: Review, with Some New Material from America. R. U. Williams, Buffalo.—p. 931.

Tumors of Muscle Type.—According to Cohen, the incidence of muscle tumors varies with the type. Leiomyoma occurs frequently, *especially in the uterus. Leiomyosarcoma* is less frequent, according to the author's studies, than is generally claimed. He describes what appears to be the first case of metastasis of leiomyosarcoma to the brain. Rhabdomyoma occurs very rarely. Rhabdomyosarcoma is rare. The diagnosis of muscle tumors depends on close observation of the type of cell; i. e., the finding of spindle-shaped cells arranged in whorl formation or of cross-striations in large, irregular cells. Mallory's and Van Gieson's differential stains are of diagnostic aid.

Experimental Thrombo-Angiitis Obliterans. — Horton and Dorsey obtained acutely inflamed veins and arteries at biopsy or at amputation of extremities in thirty-four cases of thrombo-angiitis obliterans. Gram-positive, pleomorphic streptococci were obtained in pure culture in nine cases and green-producing streptococci in two. Cultures were taken in a similar manner of arteries and veins from ten amputated extremities of patients with arteriosclerosis, and five cultures yielded gram-positive, pleomorphic streptococci. Cultures from normal arteries and veins of twenty-four other patients were negative. Four different methods were used in attempting to reproduce thrombo-angiitis obliterans in experimental animals: 1. Pleomorphic streptococci were injected intravenously into thirteen rabbits. Intimal proliferation with thrombosis took place in two. Thirty-one rabbits were given injections in a similar manner with organisms obtained from extracted teeth, tonsils, the nasopharynx and secretions of the prostate. Negative results were obtained. 2. Pleomorphic streptococci were injected into the femoral muscles, adjacent to the femoral vessels, of forty-two rabbits. Intimal proliferation and thrombosis occurred in ten rabbits. 3. Portions of the vessels obtained from patients with thrombo-angiitis obliterans were embedded in positions adjacent to the femoral vessels of twenty-nine rabbits and one dog. Intimal proliferation and thrombosis occurred in seven rabbits, and in one rabbit trophic changes and dry gangrene developed in the toes of the hind feet. 4. Vessels that had been previously shown to contain pleomorphic streptococci were embedded into the pulp cavities of teeth of two dogs, with negative results. The results obtained by injecting organisms at sites adjacent to the femoral vessels of rabbits and those obtained by embedding segments of vessels from human beings in positions adjacent to the femoral vessels were essentially the same (23.8 and 24.1 per cent, respectively, positive). The pathologic lesions found in the vessels of these rabbits appeared to be identical with those seen in human beings with thrombo-angiitis obliterans and represent, so far as the authors are aware, the first lesions of this type that have been produced in experimental animals. The study suggests that thrombo-angiitis obliterans is of infectious origin and that the streptococcus may be of etiologic significance.

Canadian Public Health Journal, Toronto

23: 253-302 (June) 1932

Development of Public Health. W. J. Bell, Toronto.—p. 253.
Milk Sanitation in Canada. R. H. Murray, Regina, Sask.—p. 259.
Approach to Mental Hygiene. J. W. MacNeill, North Battleford, Sask. —p. 267.
Rural Prenatal Program. M. McCuaig.—p. 271.
Some Unusual Cases of Syphilis. H. R. Elliott, Toronto.—p. 275.

Journal of Comparative Neurology, Philadelphia

55: 1-271 (June 15) 1932

Peripheral Nervous System of Earthworms. B. R. Coonfield, Boston. —p. 7.
Hypothalamus of Albino Rat. W. J. S. Krieg, New York.—p. 19.
Rigidity Caused by Pyramidal Lesions in Cat. S. W. Ranson, Chicago. —p. 91.
Neurofibrillar Structure of 7-Mm. Cat Embryo. W. F. Windle, Chicago. —p. 99.
Connections of Auditory Cortex of Cat. F. A. Mettler, Ithaca, N. Y. —p. 139.
Somatic Motor Mechanisms in Midbrain and Medulla Oblongata of Chrysemys Elegans (Wied). H. Tuge, Philadelphia.—p. 185.

Journal of Lab. and Clinical Medicine, St. Louis

17: 843-950 (June) 1932

Technic of Blood Examination. R. L. Haden, Cleveland.—p. 843.
*Value of Accurately Determined Color, Volume and Saturation Indexes in Anemias: Based on Study of Over Two Hundred Patients. E. E. Osgood, H. D. Haskins and F. E. Trotman, Portland, Ore.—p. 859.
Current Views on Origin and Maturation of Cells of Blood. C. A. Doan, Columbus, Ohio.—p. 887.
*Size and Hemoglobin Content of Erythrocyte: Methods of Determination and Clinical Application. M. M. Wintrobe, Baltimore.—p. 899.
Sickle Cell Phenomenon: I. Rate of Sickling in Moist Preparations. L. W. Diggs, Memphis, Tenn.—p. 913.
*Clinical Applications of Supravital Staining. Edna H. Tompkins, Nashville, Tenn.—p. 921.
Hemophilia. C. A. Mills, Cincinnati.—p. 932.
Variations in Diameter of Granulocytes: Preliminary Study. J. W. Love, Cleveland.—p. 942.

Color, Volume and Saturation Indexes in Anemias.—Osgood and his associates review the literature on the color, volume and saturation indexes in anemias. They report detailed results, obtained by methods of research accuracy, for hemoglobin, red cell count, cell volume, color index, volume index, and saturation index in 144 cases of anemia and related conditions. The most characteristic change in pernicious anemia is the preponderance of macrocytes in the blood. This is most easily recognized by the volume index determination. The high color index in pernicious anemia is due to the increase in size of the cell, not to increased concentration of hemoglobin within the cell. In other words, the saturation index is normal, and true hyperchromia does not occur either in pernicious anemia or in any other condition so far studied. If either the color or the volume index is above 1.25, the patient with rare exceptions will prove to have pernicious anemia. Such a high color and volume index constitutes a definite indication for the administration of liver therapy. A low saturation index strongly suggests that the anemia is due to chronic blood loss and constitutes a definite indication for a search for the cause of the bleeding, an effort to stop the bleeding, and the administration of iron in large doses. Anemia is rare in patients having malignant tumors without bone marrow metastases, hemorrhage or secondary infection; hence the finding of anemia in such patients should suggest that one or more of these complications has occurred. The color, volume and saturation index determinations are extremely valuable aids in the differential diagnosis of anemias. It is necessary to warn, however, that they may be not only of no assistance but actually misleading if they are not determined by an accurate method with controlled technic and if the calculations are not based on correct normal standards now available instead of on the obsolete values still included in most textbooks.

Size and Hemoglobin Content of Erythrocyte.—Wintrobe calls attention to the fact that the differentiation of pernicious and other forms of macrocytic anemia and of anemias characterized by microcytosis and hypochromia from other forms of anemia is not only of academic and diagnostic interest but also essential in the guidance of appropriate treatment. Such differentiation is best made, from the standpoint of simplicity and accuracy, by the calculation of the volume and hemoglobin content of the red corpuscles. These calculations, when combined with the simple examination of the blood smear, yield more information at the expense of much less effort than is entailed in the measurement of the diameter of the red corpuscles. It is possible, on the basis of differences in the size and hemoglobin content of the erythrocyte, to distinguish four types of anemia: 1. Macrocytic anemias, characterized by an increase in the mean volume and hemoglobin content of the erythrocytes and represented chiefly by pernicious anemia and many cases of sprue. 2. Normocytic anemias, which are distinguished by the presence of red cells of normal size and hemoglobin content; this group includes cases of anemia resulting from acute blood loss, hemolytic anemias (malaria), and aplastic anemias. 3. Simple microcytic anemias, which are characterized by a moderate reduction in the size of the red cells with no or little reduction in their hemoglobin concentration; in this group are found the majority of the anemias associated with chronic infections and toxic processes. 4. Hypochromic microcytic anemias; in this type of anemia there may be little or no reduction in the red cell count. Nevertheless the red corpuscles are found to be very small and are poorly filled with hemoglobin. The determination of the size and hemoglobin content of erythrocytes is chiefly important in that it makes possible the ready differentiation of the macrocytic and hypochromic microcytic anemias from the other two types.

Clinical Applications of Supravital Staining. — Tompkins analyzes the conditions in which the specific information obtained from supravital staining is likely to be of help in diagnosis or prognosis. She shows that the method is of value, first, in the differentiation of mononuclear cells of various types, including the young forms of the different strains of white blood cells, and secondly, in showing qualitative differences in any single type of mononuclear cell. In the latter respect the method is particularly helpful in depicting qualitative changes in the lymphocytes and monocytes. Therefore, the method is likely to give assistance in any condition involving the mononuclear cells. This is true whether it is a condition involving the lymphocytes or monocytes or a condition associated with the appearance of young cells. In the case of diseases involving the lymphocytes it has been found that the increases in those cells in certain diseases, such as pertussis, lymphocytic reactions to sepsis, and tuberculosis, are due to cells that are normal in every respect, while other diseases are characterized by the appearance of lymphocytes which stain in the manner of young cells. The infections of childhood, typhoid, malaria and measles are the common conditions in which young lymphocytes may be found. On the other hand, the lymphocytes in infectious mononucleosis are different from either normal or young cells. The lymphocytes of lymphatic leukemia have been shown to exhibit characteristic changes in mitochondria, vacuolar apparatus and nuclei which help to differentiate them from other conditions involving the lymphocytes, as well as from other mononuclear cells. Supravital staining has proved especially valuable in diseases involving the monocytes, because it has not only aided in the detection and differentiation of these cells but has revealed sufficiently characteristic changes in them in a number of pathologic conditions (tuberculosis, undulant fever, malaria, hepatic disturbances, pyogenic infections, and conditions associated with anemia) for the modifications to be of value in diagnosis. The diagnosis of a third type of leukemia, i. e., monocytic leukemia, has been made more certain by supravital blood studies. As a result of these studies it has been possible to differentiate the condition accurately from lymphatic and myelogenous leukemia. In fact, in the leukemias in general, supravital staining with the double stains has proved of tremendous value in the separation of the three main types and in the classification of those types according to their chronicity.

Journal of Nervous and Mental Disease, New York

75: 601-716 (June) 1932

*Active External Hydrocephalus: Report of Three Cases. W. J. Gardner, Cleveland.—p. 601.
Congenital General Pure Analgesia: Case. G. van N. Dearborn, New York.—p. 612.
*Poliomyelitis. I. J. Sands, Brooklyn.—p. 616.
Diplopic and Triplopic Hallucinations in Delirium Tremens. G. Richards, Albany, N. Y.—p. 630.
*Epilepsy and Congenital Syphilis. K. A. Menninger and W. C. Menninger, Topeka, Kan.—p. 632.

Active External Hydrocephalus.—Gardner describes three cases diagnosed as active external hydrocephalus. This diagnosis was made on the basis of the encephalographic observation of marked dilatation of the subarachnoid spaces over the cerebral hemispheres. The activity of the process was indicated by the symptoms of increased intracranial pressure and choking of the optic disks in each case. The total volume of cerebrospinal fluid was found to be markedly increased, but the cause of this increase was not determined. In each case a simple subtemporal decompression was followed by complete recovery.

Poliomyelitis.—According to Sands, the treatment in acute anterior poliomyelitis should be directed toward neutralization of the virus by intravenous and intramuscular administration of serum from convalescent patients as soon as the diagnosis is made; reduction of cerebral edema by administration of hypertonic solutions of dextrose intravenously, and by spinal drainage; combating difficulties in respiration and in deglutition; and protecting the paralyzed muscles by proper mechanical support. The treatment of the paralyses should be directed by properly trained physicians and by competent nurses trained in orthopedic and physical therapeutic principles. Prophylactic measures during an epidemic may be advantageously utilized by segregating the child, and by the administration of immune serum or whole blood intramuscularly. The latter procedure may be repeated every three or four weeks.

Epilepsy and Congenital Syphilis.—The Menningers state that the literature on the relationship of congenital syphilis and epilepsy contains many opinions and statistical studies. The consensus favors the view that congenital syphilis may be a direct or an indirect cause of the epileptic syndrome; some investigators regard their occurrence together as merely coincidental. The authors feel that much of the published work on this problem is based on inadequate diagnostic data. Sometimes a single fixed criterion of syphilis is selected, such as the serum Wassermann reaction or the therapeutic test (in spite of the well known fallibility of both). Sometimes variable tests are used in various cases without uniformity; sometimes the data on which the diagnosis is based are not stated. Too frequently, case histories are not cited. The crux of the problem is the definite diagnosis or exclusion of congenital syphilis. This the authors do not believe can be done on the basis of the presence or absence of any single symptom or sign or of several fixed and invariable symptoms and signs (*including convulsions*), but *only on the presence or absence* of observations in the carefully investigated hereditary, physical and chemical constituents of the individual which, taken in association, point to such a diagnosis. Using such a standard, they selected for presentation thirty-one cases of individuals having convulsions of the "idiopathic epilepsy" type which were regarded as being of congenital syphilitic etiology. It was concluded that congenital syphilis can produce convulsions, directly and indirectly, without the presence of gross brain lesions or encephalitis (juvenile dementia paralytica) and thus appears to be "idiopathic" epilepsy. From a statistical point of view, when compared with the total number of epileptic persons and the total number of persons with congenital syphilis the occurrence of congenital syphilitic epilepsy must be regarded as unusual. The frequency, however, is not so important as the definite establishment of its occurrence.

Journal of Thoracic Surgery, St. Louis

1: 451-572 (June) 1932

*Acute Empyema. G. J. Heuer, New York.—p. 461.
Bronchial Stenosis. L. Eloesser, San Francisco.—p. 485.
*Bronchiectasis. H. Ballon, J. J. Singer and E. A. Graham, St. Louis.—p. 502.
New Portable Pneumothorax Machine. J. J. Singer, St. Louis.—p. 562.

Acute Empyema.—According to Heuer, the respiratory infections that commonly give rise to empyema may roughly be divided into two large groups, pneumonia and influenza. Their clinical manifestations, their pathologic changes and their mortality differ from one another and, in each group, differ from year to year. So, too, do the manifestations of the empyemas that complicate them often differ. In lobar pneumonia the empyema usually follows the disease, appearing after the pneumonic process has subsided; in influenza, it usually appears coincidentally with the pneumonic process. There is therefore a difference in the time of appearance of the empyema with respect to the pneumonic process in the lungs, a circumstance which has an important bearing on the treatment of empyema. The symptoms in the two groups of cases may vary greatly. In empyema following pneumonia they are often comparatively mild. The patient may indeed have a distressing cough, a septic temperature and unpleasant sweats and may lose weight; but in an uncomplicated pneumococcic empyema he may live on for months until he is overcome by mediastinal pressure symptoms or some accident. In empyema following influenza the symptoms are often far more severe; a high grade of toxemia, rapidity of the pulse, urgent respiration and the general appearance of the patient all suggest that he is desperately ill. Indeed, his symptoms seem out of proportion to those one expects from a simple empyema and suggest some additional grave condition; and should he die, as he may early in the disease, necropsy will often reveal a bilateral lobular pneumonia, pericarditis or some equally serious lesion. It is not implied that there is always this striking dissimilarity in the two groups of cases. The postpneumonic empyemas may present the grave symptoms of the postinfluenzal empyemas and at necropsy may show quite similar lesions; again, the postinfluenzal empyemas may present quite as mild symptoms as the postpneumonic empyemas. The question, then, often arises in both groups, whether the severity of the symptoms is due to the empyema alone or to additional complications the result of the respiratory infections.

Bronchiectasis.—In summarizing their discussion on lobectomy for bronchiectasis, Ballon and his associates state that, although improvements in methods of operating have been introduced in recent years, the operation remains even in the best hands one of the most serious procedures in the surgical repertory. From a list of collected operations performed by different operators and by different methods it is hardly fair to draw precise conclusions concerning the operative mortality and the probable chance of a satisfactory result. Yet the fact remains that in 212 collected cases no less than 72 patients (34 per cent) died apparently because of the operation and apparently in only 99 (47 per cent) was a thoroughly satisfactory result obtained. Even if one takes only the more recent and the more favorable figures, one still finds that a patient with bronchiectasis who submits to a lobectomy runs about a 15 to 20 per cent risk of dying because of the operation, and that if he recovers from the operation he has only about a 65 per cent chance of having a thoroughly satisfactory result with solid healing of the wound. In presenting this aspect of the results of lobectomy, the authors point out that there is no intention to be destructive or to argue that the operation is too dangerous or too uncertain in its results to be justifiable. On the contrary, much satisfaction should be gained from the fact that so many patients have been made well; for probably most of those who have obtained satisfactory results have been saved from death due to the natural consequences of the disease, and most of those who have died as a result of the operation would have died if left untreated.

Kansas Medical Society Journal, Topeka

33: 187-228 (June) 1932

President's Message: Importance of Recognizing the Human Element in Medical Organization. P. S. Mitchell, Iola.—p. 187.
Legislation in Interest of Veterans. H. H. Shoulders, Nashville, Tenn.—p. 192.
Study of Defects in Hospital Sterilization Practice. R. E. Lawrence, Lawrence.—p. 200.

Laryngoscope, St. Louis

42: 415-495 (June) 1932

Symposium on Nervous Acusticus: I. Applied Anatomy of Eighth Nerve and Its Environs, the Cerebellopontile Angle. C. B. Courville, Los Angeles.—p. 415.
Id.: II. Pathologic Conditions Involving Eighth Nerve and the Cerebellopontile Angle. N. Evans and C. B. Courville, Los Angeles.—p. 432.
Id.: III. Pathologic Anatomy of Its Neoplasms. L. J. Adelstein, Los Angeles.—p. 456.
Id.: IV. Histopathology of Eighth Nerve. E. M. Hall, Los Angeles.—p. 462.
Id.: V. Eighth Nerve Symptomatology from Standpoint of Neurology. S. D. Ingham, Los Angeles.—p. 482.
Id.: VI. Vestibular Symptomatology. E. R. Lewis, Los Angeles.—p. 485.
Id.: VII. Eighth Nerve Symptomatology from Standpoint of Neurosurgery. C. W. Rand, Los Angeles.—p. 491.

Maine Medical Journal, Portland

23: 121-134 (June) 1932

Treatment of Deafness. F. T. Hill, Waterville.—p. 126.

Medical Bull. of Veterans' Adm., Washington, D. C.

8: 431-517 (June) 1932

Phrenic Exeresis. A. G. Walker.—p. 431.
Nontuberculous Lung Diseases: Report of Three Cases: Coccidiosis, Actinomycosis, Carcinoma. H. B. Williams.—p. 435.
Consideration of Some Factors in Early Hypertension. T. Ziskin.—p. 442.
*Treatment of Dementia Paralytica with Inoculation Malaria. O. P. Goodwin.—p. 449
Malaria Treatment of General Paralysis. R. L. Harris.—p. 454.
*Low Back Pain (Lumbar Spine). H. L. Wheeler.—p. 458.
Studies of Venous Pressure: Their Clinical Application. L. H. Criep.—p. 463.
Nitrous Oxide-Oxygen Anesthesia. P. D. Moore.—p. 469.
The Forssman or Heterophile Antigen. E. W. Lazell.—p. 477.
Dental Focal Infection. R. J. Hamilton.—p. 486.

Treatment of Dementia Paralytica with Inoculation Malaria.—Goodwin points out that secondary anemia sometimes follows inoculation malaria, and it is essential that complete blood counts be made twice weekly and oftener if deemed necessary. Dementia paralytica is more frequent in white persons but runs a more rapid course in Negroes. Life expectancy is increased by malarial therapy of dementia paralytica patients regardless of whether there is a complete remission in their condition. Quinine is definitely contraindicated when the red blood cell count is below 2,000,000 and the hemoglobin below 40. Patients with temperatures around 105 F. show the greatest amount of improvement. The results of inoculation malaria depend on the amount of parenchymatous degeneration present.

Low Back Pain.—According to Wheeler, one of the most difficult problems that confront the medical examiner in his endeavor to evaluate orthopedic disabilities is that of "lumbar spine" or low back pain. This pain may be due to a host of different causes, and it should be the aim of the examiner to determine the exact cause and govern himself accordingly. However, this is not an easy matter. In some instances the diagnosis is simple, but the exact classification of the symptoms many times constitutes quite a problem Especially is this true in cases of an industrial nature or when rehabilitation is sought and disability compensation enters into the problem The fact that lumbar pain presents a certain difficulty to the examiner is often known by the patient, and consequently it is most difficult to trip up a malingerer who presents himself complaining of pain in the lower portion of the back.

Military Surgeon, Washington, D. C.

70: 529 656 (June) 1932

Care of Gas Casualties C C Hillman —p 529
Dietetic Management in Military Hospitals Its Perplexities and Responsibilities H C Michie —p 550
New Bactericide for Treating Anterior Gonorrhea J S Diasio —p 594
Trip to Culion Leper Colony S F Seeley —p 597

New England Journal of Medicine, Boston

206: 1231 1280 (June 16) 1932

Cirrhosis of Liver F B Mallory, Boston —p 1231
Operative Mortality in Goiter H M Clute, Boston —p 1240
*Reasons for Unsatisfactory Results in Treatment of Calculi of Upper Urinary Tract E L Peirson, Jr, Salem, Mass —p 1243
New Method of Treating Indirect Sac in Inguinal Herniorrhaphy E M Hodgkins, Boston —p 1249
Small Milk Borne Outbreak of Septic Sore Throat R E Archibald, Lynn, Mass, and R F Feemster, Boston —p 1252
Causation and Propagation of Heart Beat W D Reid, Boston —p 1254
Retroperitoneal Perirenal Lipoma L Wechsler, Pittsburgh —p 1259
Fracture of Capitellum F S Hopkins, Springfield, Mass —p 1261
Removal of Separated Upper Epiphysis of Radius F H Baehr and L E Hathaway, Jr, Springfield, Mass —p 1263

Treatment of Calculi of Urinary Tract.—In an analysis of the cases of ureteral and renal calculi at the Massachusetts General Hospital over a ten-year period, Peirson found that the results obtained in the treatment of these cases are not so good as should be expected Further analysis of these cases shows that the greatest cause of failure is due to delay in performing the operation It seems desirable that the public and the medical profession realize more clearly the seriousness of urinary calculi The author believes that every patient who is suspected of having a urinary calculus should have both a complete urinalysis and roentgen examination If a stone is discovered, cystoscopy should be performed and the patient carefully followed until the stone has been removed If attempts are made to remove the stone by nonoperative measures the case must be carefully followed from every angle and operation performed on the first appearance of signs of infection or increasing kidney damage Expectant treatment can be safely carried out only after a complete urologic examination and in cases in which the patient will be continually under rigid medical observation

Northwest Medicine, Seattle

31: 263 312 (June) 1932

Our Futile Intelligence G C Schauffler, Portland, Ore —p 263
What the County Medical Society Can Do for Its Members C E Hunt, Eugene, Ore —p 267
What Is Socialized Medicine? A H Peacock, Seattle —p 270
Relative Value of Medical Magazines K K Sherwood, Redmond, Wash —p 273
Irritable Colon Deficiency Disease J C Brougher, Vancouver, Wash —p 277
Shadow Box Colitis B R Brooke and W Dixon, Portland, Ore —p 281
The Great Omentum and Omental Thrombosis A H Johnson Portland, Ore —p 285
Suppurative Pericarditis Surgical Consideration with Case Report W H Bueermann, Portland, Ore —p 290
Postoperative Parathyroid Tetany E A Nixon, Seattle —p 297
Pseudopellagra? Resulting from Certain Dietary Deficiencies I B Kingery, Portland, Ore —p 300
Pellagra Case Report J C Hathaway, Spokane, Wash —p 302

Oklahoma State Medical Assn. Journal, Muskogee

25: *221-276 (June) 1932*

Duty of *the Physician to His Profession* R M Anderson, Shawnee —p 221
Some Preliminary Observations of "Bacteriophage" A L Guthrie, Oklahoma City —p 224
Immunization Against Diphtheria with Toxoid in Private Practice C E Bradley, Tulsa —p 227
Some Recent High Points in Surgical Progress F S Watson, Okmulgee —p 230
Anterior Pituitary H H Turner, Oklahoma City —p 232
Postgraduate Medical Course in Otology L W Kibler, Norman —p 236

Pennsylvania Medical Journal, Harrisburgh

35: 605-684 (June) 1932

Symposium on Allergy Hay Fever and Its Complications A M Peters, Allentown —p 605
Id Nasal Pathology Associated with Bronchial Asthma A T Smith, Philadelphia —p 607
Id Asthma and Other Clinical Allergies J A Clarke, Philadelphia —p 609
Erysipelas in Infancy and Childhood E L Bauer, Philadelphia —p 613
Evaluation of Electrocoagulation of Tonsils C W Beals, Du Bois —p 615
Status Lymphaticus Its Relation to Thymus and Adrenal Glands E H Campbell, Philadelphia —p 620
Preoperative and Postoperative Treatment of Surgical Diseases of Kidney from Medical Standpoint D Riesman, Philadelphia —p 624
Symposium on Kidney Tumors of Kidney B L Crawford, Philadelphia —p 629
Id Treatment of Pyelitis (Pyelonephritis) R I Anderson, Pittsburgh —p 630
Fothergill Operation Standardized Procedure for Correction of Genital Prolapse F H Maier and W J Thudium, Philadelphia —p 640

Public Health Reports, Washington, D. C.

47: 1285 1328 (June 10) 1932

Duration of Viability and Virulence of Bacillus Pestis E Francis —p 1287

South Carolina Medical Assn. Journal, Greenville

28: 123 151 (May) 1932

President s Address C A Mobley, Orangeburg —p 128
Artificial Pneumothorax C W Evatt, Greenville —p 130
Rectal Diseases from Standpoint of General Practitioner H B Stone, Baltimore —p 132

Tennessee State Medical Assn. Journal, Nashville

25: 207 250 (June) 1932

"Sprue" J W McElroy, Memphis —p 207
Surgical Treatment of Arterial Aneurysm B Brooks, Nashville —p 215
Hazards of Surgery in Obstetrics P W Toombs, Memphis —p 220
Electrical Injuries J A McCulloch, Maryville —p 225
Cancer of Orbit J W Danley, Lawrenceburg —p 229
Cancer of Larynx Report of Case with Lantern Slides H W Qualls, Memphis —p 232
Improvements in Anesthetic Complex, with Especial Reference to Local Anesthesia in Bone Surgery E T Newell, Chattanooga —p 236

Wisconsin Medical Journal, Madison

31: 430 499 (July) 1932

The Small Town Physician in General Practice and His Relationship to the Medical Profession J H Karsten, Horicon —p 439
*The Anemias of Adolescence Clinical Diagnosis, Pathology and Treatment H R Fehland, Wausau —p 442
Purpura Hemorrhagica E L Mason Eau Claire —p 447
Inefficacy of Present Day Treatment of Pernicious Anemia H V Kamp, Chadron, Neb —p 451
Cardiac Irregularities K H Doege Marshfield —p 455
History in Diagnosis of Pulmonary Tuberculosis O Lotz, Milwaukee —p 458

The Anemias of Adolescence.—According to Fehland, the problem of the anemias of adolescence is closely interwoven with that of the spleen The clinical phenomena may not always readily reveal this relationship, but in a great many instances it is the pathologic spleen which serves as the underlying cause of a severe anemia Since the spleen is a part of the reticulo-endothelial system to which also belong the other lymphoid tissues of the body, it follows that the spleen reaches the height of its activity during adolescence and therefore also appears to be more subject to pathologic processes during this period The most common disease process is that which functionally produces a work hypertrophy and is usually associated with anatomic hypertrophy as well The result of such changes is commonly an increase in the normal physiologic function or destroying formed blood elements, whether these are red blood cells, as in hemolytic icterus, in which these cells are abnormally fragile, or white blood cells, as in early Banti's disease and Gaucher's disease, or even platelets, as in purpura hemorrhagica At other times the pathologic spleen resumes certain fetal characteristics in the production of embryonic white blood cells, bringing about the clinical syndrome known as myelogenous leukemia In all these conditions there obtains a fundamentally malfunctioning spleen, and the ultimate clinical phenomenon is that of an anemia Splenectomy, when indicated and when preceded by proper preoperative care, offers the best results with low surgical mortality

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. of Dermatology and Syphilis, London

44: 297-356 (June) 1932

*New Phase in Early Syphilis. J. A. Drake and M. S. Thomson.—p. 297.
Some Points in Connection with Meinicke (M. K. R.) Test. J. E. Nicole.—p. 305.
Physiology of Superficial Blood Vessels in Psoriasis. W. G. C. Paterson.—p. 310.

New Phase in Early Syphilis.—Drake and Thomson call attention to the fact that during the past decade many "arsenic-resistant" cases of syphilis have been described. These comprise individuals with resistant Wassermann reactions, patients in whom the original primary and secondary lesions have been highly persistent, and cases in which a partial involution of the early eruption has preceded an exacerbation of the same rash while the patients were still under treatment. But few have shown the strikingly rapid progression illustrated by a series of ten selected cases reported by the authors. On the whole, opinion seems to favor an obscure lack of response on the part of the individual. The fault cannot lie with the arsenic or any particular preparation of it because the majority of cases of early syphilis still progress satisfactorily to a cure, and unfavorable results have been reported with different preparations. The evidence as a whole points to the possibility that a more resistant strain of spirochete is beginning to make its appearance.

British Journal of Ophthalmology, London

16: 321-384 (June) 1932

*Clinical Significance of Ocular Musculature, with Especial Reference to Intra-Ocular Pressure and Circulation of Intra-Ocular Fluid. W. S. Duke-Elder and P. M. Duke-Elder.—p. 321.
Sir William Read's Treatise of Eyes. A. Sorsby.—p. 335.
Late Sixteenth Century Ophthalmic Book in English. A. Sorsby.—p. 345.
Optic Atrophy After Injections of Arsenic. T. H. Butler.—p. 356.
Retinal Detachment Occurring Probably After Herpes Zoster Ophthalmicus in Case of Simple Glaucoma. A. A. B. Scott.—p. 358.
William Briggs, M.D. (1650-1704). R. R. James.—p. 360.

Clinical Significance of Ocular Musculature.—The Duke-Elders point out that the diurnal pressure curve in the normal eye is a well known physiologic phenomenon. The pressure varies throughout the day by some 2 to 3 mm. of mercury; it is highest in the early morning before the patient commences the day's activities; after he gets up it falls, at first rapidly and then more slowly, until the evening when he retires to rest. Through the night in bed the reverse occurs: a rise occurs, again in two stages—a slow and gradual rise during the first few hours, and then a more rapid rise in the early morning. This is almost certainly due to the influence of the pressure-circulation: the absence of muscular activity during the night allows the pressure to rise, and the commencement of movements in the morning immediately lowers it. It is significant that in most cases of chronic glaucoma the diurnal variation is greatly exaggerated; and in case of doubtfully raised tension it is a wise procedure to take the tension of the eye while the patient is still in bed and before the activities of the day are commenced. The authors also call attention to the fact that the marked influence of the extra-ocular muscles on the intra-ocular pressure demonstrates the necessity for adequate akinesia in all intra-ocular operations. When it is remembered that a relatively mild contraction of the orbicularis raises the intra-ocular pressure from 27 to 53 mm. of mercury, the danger of loss of vitreous in a cataract extraction is obvious unless this muscle is thrown out of action. It follows that in all such operations the orbicularis should be paralyzed, either by injection of the facial nerve as it crosses the ramus of the mandible or by a local injection around the orbit; the former method is the one of greater precision, the latter the one of greater ease and certainty. Further, the action of looking down raises the pressure of the eye by the contraction of the recti, a rise which becomes quite marked if the action is forced. If every precaution is to be taken, a retrobulbar injection of procaine hydrochloride should be employed. This should be employed as a very dilute (0.25 or 0.5 per cent) solution injected immediately before one commences the operation, so that the muscles are not wholly paralyzed but merely weakened.

British Journal of Urology, London

4: 105-108 (June) 1932

*Transurethral Prostatic Resection. H. C. Bumpus, Jr.—p. 105.
Vesico-Intestinal Fistula. J. F. Dobson and P. J. Moir.—p. 122.
Ureterocele. J. Carver.—p. 132.
System for Permanent Filing of Cases of Genito-Urinary Diseases According to Diagnosis. H. P. Winsbury-White.—p. 139.

Transurethral Prostatic Resection.—Bumpus states that for transurethral prostatic resection the most satisfactory enlargement is that due to benign adenomatous hypertrophy of the gland. Healing is usually rapid even in cases in which considerable tissue is removed. The amount of tissue removed to relieve the obstruction will, of course, be greatest in this group. The next most satisfactory cases are the adenocarcinomas. After removal of obstructing tissue, recurrence is not so rapid as one might expect. The author has a specimen of a bladder removed at necropsy several years after resection in which the urethra was still free of obstruction, although the patient died with extensive metastasis to the viscera as well as to the skeleton. The mucous membrane was intact over the excised area in the specimen. The patient remained free of residual urine to the time of his death and was saved many years of catheter life by the procedure. Of course, the majority of patients die as a result of the disease before there is time for recurrence of the obstruction, but the resection was repeated in one case five years after the initial operation with relief of symptoms. The pathologist reported that the tissue from both operations was highly malignant. When the obstruction is due to prostatitis and only inflammatory tissue is excised at the time of resection, the results are prone to be disappointing. Such patients should not be subjected to resection until every effort has been exhausted to correct the prostatitis by other methods. When such methods have failed and residual urine persists, resection of the obstructing portion of the gland is justified. If the precaution of previous treatment by massage and irrigation is not followed, a stormy reaction may occur following operation, as to resect prostatic tissue in the presence of active infection is needlessly to court disaster. In such cases the author insists on local treatment until the prostatic infection appears as quiescent as can be hoped for. He also places the patient on a ketogenic diet, which renders the urine highly bactericidal in the majority of cases. If these precautions are taken, resection can be performed and may frequently break up the vicious cycle of prostatitis producing residual urine and the residual urine acting as an irritant to the prostatitis.

British Medical Journal, London

1: 1017-1062 (June 4) 1932

Liver and Spleen: Their Clinical and Pathologic Associations. J. W. McNee.—p. 1017.
*Clinical Comparison of Ergotoxine and Ergotamine: Report to the Therapeutic Trials Committee of the Medical Research Council. C. Moir.—p. 1022.
*Menace of Obesity. E. Bulmer.—p. 1024.
*Symptomatic End-Results of Operations for Cholecystitis: Review of One Hundred and Fifty-Three Cases. J. C. Ross.—p. 1026.

Comparison of Ergotoxine and Ergotamine.—Moir describes a method by which the response of the human puerperal uterus to oxytocic drugs may be directly recorded. By the use of this method in a series of puerperal patients he demonstrated that both ergotoxine and ergotamine bring about strong contractions in the puerperal uterus when they are administered by injection. Ergotoxine and ergotamine are indistinguishable from each other in their action on the puerperal uterus. The effect comes on slowly and takes from fifteen to forty-five minutes to appear after intramuscular injection. The most suitable dose for intramuscular injection is 0.5 mg. Oral administration gives slow and erratic results, even after comparatively large doses of the drug.

Menace of Obesity.—According to Bulmer, overweight after the age of 35 years increases the general mortality. The cause of obesity is usually increased carbohydrate diet. Treatment is simple and dietetic. Obesity and hyperpiesia are associated. Diabetes is probably a penalty of obesity in the majority of cases. Degenerative disease of a fatal nature in the heart, arteries, kidneys and liver are two and a fourth times commoner in the obese than in persons of standard weight, and three and three-fifths times commoner than in those underweight. Chronic cholecystitis and gallstones are much more frequent in the obese.

End-Results of Operations for Cholecystitis.—From a study of the symptomatic and end-results of operations in 153 cases of cholecystitis, Ross concludes that complete cure may be expected in 82.4 per cent. Of the rest, 10.5 per cent are relieved, while 7.01 per cent remain in statu quo. The symptoms of flatulent dyspepsia, including qualitative anorexia, completely disappear in more than 80 per cent of cases. It would appear that the absence of stones renders the prospect of cure perceptibly less. However, in cases of acute cholecystitis the absence of stones has no effect whatever on the prospect of cure. The operative mortality varies between 2 and 6 per cent, depending to a large extent on the type of case dealt with. In the author's series, dealing with every type of case, the mortality was 5.8 per cent. The average period of convalescence before full work is resumed is thirteen weeks.

Journal of State Medicine, London

40: *311-372 (June) 1932*

Control of Industrial Rheumatism. W. S. C. Copeman.—p. 311.
*Classification of Dysentery Bacilli. A. Castellani.—p. 324.
Prevention of Chest Troubles in Children. A. Moncrieff.—p. 336.
Silicosis and the Industrialist. R. Ballantyne.—p. 342.
Public Health Service of the Future Metropolis Considered in Relation to Replanning of Local Government Areas of London and Greater London. F. S. Hill.—p. 350.

Classification of Dysentery Bacilli.—Castellani states that, from the standpoint of the practical clinical bacteriologist, dysentery bacilli sensu lato may be conveniently separated, as suggested by him, as follows: 1. Dysentery bacilli sensu stricto (Bacillus dysenteriae Shiga-Kruse) do not clot milk, do not acidify mannitol. 2. Paradysentery bacilli (Bacillus paradysenteriae variety Flexneri; variety Hissi-Russelli) do not acidify lactose, do not clot milk, acidify mannitol. 3. Metadysentery bacilli acidify lactose, usually clot milk. A somewhat similar nomenclature may be used to indicate the various types of bacterial dysenteries: (1) bacterial dysentery, sensu stricto, due to Bacillus dysenteriae Shiga-Kruse (Eberthus dysenteriae Shiga-Kruse); (2) paradysentery, due to the different varieties of Bacillus paradysenteriae Collins (Eberthus paradysenteriae Collins, with its varieties Flexneri, Hissi-Russelli) and (3) metadysentery, due to the metadysentery bacilli (bacilli of the genus Castellanus Cerruti). From the point of view of the systemist the first two groups of bacteria (dysentery and paradysentery) belong to the genus Eberthus, subgenus Shigella, the third group to Cerruti's genus Castellanus.

Journal of Tropical Medicine and Hygiene, London

35: 162-176 (June 1) 1932

Serologic Studies on Bacillus Morgan No. 1 (Salmonella Morgani Cast. and Chalm.). A. Castellani.—p. 162.
Chemical Nature of Pellagra Toxin and Discovery of Thiosulphate Treatment of Pellagra. I. Sabry.—p. 164.

Lancet, London

1: 1239-1292 (June 11) 1932

*Obstetric Forceps and Its Use. Mabel Dobbin Crawford.—p. 1239.
*Present Position of Prostatectomy. H. Cabot.—p. 1243.
Endo-Urethral Treatment of Enlarged Prostate. J. F. McCarthy.—p. 1246.
*Focal Sepsis as Cause of Nephritis. A. C. Alport.—p. 1247.
*Menopausal Age and Mammary Carcinoma. E. K. Dawson.—p. 1251.

Use of Obstetric Forceps.—According to Crawford, the rules for the application of forceps are four. 1. Forceps may be applied only during the second stage of labor—that is, when the cervix is fully dilated and taken up. In rare instances, in which every other condition is favorable and delivery urgent, it may be permissible to incise a thin margin of cervix, but it is never justifiable to drag a fetus through a partially dilated os; the resulting lacerations may cause the mother's death or turn her into a chronic invalid. 2. The second rule is that the head must be fixed and the largest presenting diameter must have passed through the pelvic brim. Forceps, ideally, constitute an instrument for lifting the fetal head over the perineum. They may be applied on occasion to the head in the middle strait that is fixed, the largest diameter through the brim but not yet descended to the perineum. The application of forceps is a success only when their use leaves the mother no worse off than she was before their application, and when the child is born alive. If the maternal efforts fail to mold the fetal head through the pelvic brim, the dragging through of that head by means of forceps is as certain to kill the child as a craniotomy and is far more liable to injure the mother. Choice must rest between correction of malpresentation, cesarean section or craniotomy or, perhaps, pubiotomy. 3. The presentation must be favorable, vertex with the occiput anterior. Occasionally the use of forceps is permissible in face presentation in which the chin is to the front; in brow, when the whole head has passed into a roomy pelvis; or, rarely, in a vertex presentation with the occiput posterior. 4. The membranes must have been ruptured.

Present Position of Transurethral Prostatectomy.—Cabot states that transurethral prostatectomy is most obviously suited to patients with small glandular hypertrophies and in general to the smaller types of obstruction. He is still doubtful whether the operation can be satisfactorily applied to patients with great enlargement of the commissural subcervical glandular structures, in general the group commonly referred to as median lobe enlargement. Some of these enlargements reach great size and project backward, entirely covering the trigon and in some cases are more or less pedunculated. For this group he has hesitated to advise transurethral prostatectomy, though he is aware that it has been successfully employed in such cases. For the present at least he would prefer for these patients the suprapubic method of attack. He is also hesitant in regard to patients with large lateral lobes which have herniated backward through the vesical sphincter and come to lie in an obstructing position in the median line. The transurethral approach seems to him considerably handicapped in dealing with this group. Here suprapubic prostatectomy is at its best and he thinks further experience, at least, is required before admitting that the lesser procedure will produce wholly satisfactory results. For the moderate enlargements such as would be classified as one and two on a scale of four, the transurethral attack is well suited and has demonstrated satisfactory results. At the present time at the Mayo Clinic something like half of the cases of prostatic obstruction appear wholly suited to this method, and the proportion that is regarded as suitable has steadily increased during the last two years.

Focal Sepsis as Cause of Nephritis.—Alport shows that in the vast majority of cases of nephritis of various types it is possible to demonstrate well marked infection of the tonsils, antrums, teeth, and so on; this is particularly the case in subacute nephritis with much edema, and it is in these patients too that early removal of focal sepsis appears to give the best results. If the kidneys are badly damaged by the long continued excretion of a more or less virulent toxin, a surgical operation, by removing the source of the latter, may tend to slow down the progress of the disease; but the best results are obtained when the tonsillar or other infection has been searched for and eradicated at an early stage. In the chronic cases of nephritis with high blood pressure (200 mm. of mercury or more) even if infection is discovered, it is questionable whether the benefit obtained is sufficient to justify the risk of surgical intervention. The author suggests that specialist examination of the tonsils and antrums be undertaken at the earliest moment in all cases of pregnancy in which albumin in the urine or other signs of nephritis appear; also in postscarlatina, diphtheria, and other conditions in which residual tonsillar or associated infections tend to occur. Moreover, if focal sepsis is discovered it should be removed at once, as a precaution against the possibility of subacute or chronic nephritis later.

Menopausal Age and Mammary Carcinoma.—Dawson makes a survey of the duration of the menopause and sets up in parallel the frequency distributions of the menopause and the age incidence of cancer of the breast. He concludes from his figures that: 1. The age distribution of the menopause, as shown in his series of cases, has a longer range (from 30 to 59 years) and frequency than is commonly allowed. 2.

The figures representing the age distributions of the menopause and the incidence of cancer of the breast are not inconsistent with the hypothesis, suggested also by other considerations, that a correlation exists.

1: 1293-1344 (June 18) 1932

*Reactions of Eye to General Disease. F. A. Williamson-Noble.—p. 1293.
*Bacillus Coli Meningitis in the New-Born. J. Gibbens.—p. 1298.
Tetanus Caused by Toy Pistol Wounds. Gwendoline Smith.—p. 1301.
Streptococcal Septicemia Complicating Epidemic Influenza. R. E. Smith.—p. 1303.

Reactions of Eye to General Disease.—Williamson-Noble points out that it is not probably realized what an intimate relationship measles has to the onset of convergent squint in children. The number of cases of squint which date from an attack of measles is large, and the reason for it is probably as follows: Nonparalytic convergent squint unassociated with disease of the retina or optic nerve is due in the ultimate analysis to failure of the fusion center to correlate the movements of the two eyes. Most of these cases occur in persons with hypermetropia and, if the hypermetropia is not corrected with glasses, clear vision can be obtained only by accommodation. The synergic action of convergence tends to occur at the same time and, if the fusion power is weak, little or no diplopia is caused and one eye becomes turned in. Binocular vision is a relatively late phylogenic acquisition and is therefore a function that is easily upset. An analogy with this is to be found in the action of anesthetics on the central nervous system, in which the highest centers are those to be first affected. The toxin of measles seems in a fair number of cases to have some peculiar selective action on the fusion center in the brain, and to bring about concomitant convergent squint, apart entirely from anything in the way of encephalitis. An uncommon sequel of measles is a degenerative change in the macular region of the retina which brings about marked diminution of visual acuity. Here again the phylogenic theory may come in, since macular vision is a relatively late acquisition. The author also points out that, although the Argyll Robertson pupil is in a high percentage of cases due to neurosyphilis, it is not necessarily pathognomonic of this disease. He mentions other diseases in which it occurs. Foremost is epidemic encephalitis, a disease that is particularly interesting, since some cases of it show the reversed Argyll Robertson phenomenon—i. e., reaction to light and none to accommodation convergence. Secondly, it has been found in cases of multiple sclerosis, and in syringomyelia and syringobulbia, while chronic alcoholism has been known to produce it. Most interesting of all, however, from the pathologic standpoint are the cases of cerebral tumor which are associated with an Argyll Robertson pupil. A sufficient number of cases would now seem to have been published to establish the truth of the observation that tumors in the region of the third ventricle, aqueduct or anterior corpora quadrigemina may give rise to this type of pupil reaction. In particular, injury of the anterior corpora quadrigemina appears to cause it.

Bacillus Coli Meningitis in the New-Born.—Gibbens reports that, in postmortem examinations on new-born infants during the last year or so at Queen Charlotte's Hospital, three cases of meningitis due to Bacillus coli have been seen. In only one of these was the diagnosis made during life; the other two were thought to be cases of intracranial hemorrhage. In one of the cases, Bacillus coli was recovered in pure culture from purulent cerebrospinal fluid during life; in the other two cases, examinations were made shortly after death, and not only did cultures yield the organism, but it was found in direct smears of the pus.

Medical Journal of Australia, Sidney

1: 711-754 (May 21) 1932

Some Historical Aspects of Smallpox. F. S. Hone.—p. 711.
*Serum Treatment of Experimental Streptococcal Infection. W. J. Penfold and Hildred M. Butler.—p. 717.
Note on Preparation of Intravenous Solutions. E. L. Cooper and A. J. B. Haldane.—p. 736.
Modern Treatment as Applied to Postoperative Pulmonary Complications and Accidents of the Beach. H. S. Stacy.—p. 737.

Serum Treatment of Experimental Streptococcal Infection.—Penfold and Butler tried two simple technics for the discovery of the antistreptococcal serum that might be expected to benefit individual patients infected with particular strains of streptococci. The technic consists, in one case, in the therapeutic use of various serums to protect mice against the experimental infection with the strain isolated from the patient and, in the second case, in the prophylactic use of serum for the same purpose. With both these methods it was found that, first, the infected mice may be unaffected by the exhibition of the serum; secondly, they may in a few cases be benefited by the serum; or, thirdly, they may be definitely injured by it. The treated animals may die much more quickly than the untreated. On the basis of their observations the authors conclude that commercial streptococcal serums are not infrequently dangerous when they are used to treat experimental streptococcal infections of mice. This dangerous effect may possibly be exerted in man. At present the authors feel it unwise to recommend streptococcal serum treatment in acute streptococcal infections in the human subject.

Practitioner, London

128: 569-660 (June) 1932

Indications for Exploration of Abdomen. Z. Cope.—p. 569.
Dercum's Disease: Case. G. R. Murray.—p. 576.
The Inoperable Prostate. K. Walker.—p. 582.
Retention of Urine and Its Treatment. T. E. Hammond.—p. 592.
Some Observations on Diagnosis and Prognosis of Pulmonary Tuberculosis. R. R. Trail.—p. 607.
Chronic Ulcers of Legs. A. D. Wright.—p. 618.
Further Observations on Electrophonoïd Treatment of Deafness. M. Yearsley.—p. 631.
Deficient Arterial Tone: Factor in Postinfluenzal Heart Weakness. T. S. Wilson.—p. 640.
Some Common Emotional Disorders. T. A. Hawkesworth.—p. 643.

South African Medical Assn. Journal, Cape Town

6: 321-356 (May 28) 1932

Blackwater Fever and Its Relation to Malaria. B. F. Sampson.—p. 323.
Obstetrics Among South African Natives. L. Marchand.—p. 329.
Gynecology in General Practice. T. Radloff.—p. 330.
Eclampsia in Cape Town. E. C. Crichton.—p. 332.
Treatment of Simple Hepatic Enlargement. A. M. Ramsay.—p. 334.

Tubercle, London

13: 385-432 (June) 1932

Influence of Gold Salts on Hemogram in Pulmonary Tuberculosis: Method of Blood Assessment. L. E. Houghton.—p. 385.
Rapid Estimation of Gold Excretion of Patients Under Sanocrysin Treatment. W. S. Stanbury.—p. 396.
Public Health Aspects of Collapse Therapy. A. J. Hruby.—p. 401.

Chinese Medical Journal, Shanghai

46: 449-554 (May) 1932

*Blood Sugar in Arsphenamine Dermatitis. Jui-Wu Mu.—p. 449.
Sacrococcygeal Chordoma: Report of Case. H. C. Pai.—p. 456.
Acute Pericardial Effusion Simulating Hepatic Abscess. A. H. Skinner and K. Gillison.—p. 465.
*Rupture of Uterus During Pregnancy Before Onset of Labor: Report of Case. S. Y. Shen.—p. 473.
Simple Method of Staining Protozoa in Fecal Films. Mary N. Andrews.—p. 476.
Ambergris: Translation and Notes from Old Chinese Literature. B. E. Read.—p. 478.
Self Survey by Mission Hospitals in China. W. G. Lennox.—p. 484.

Blood Sugar in Arsphenamine Dermatitis.—Mu tested the sugar tolerance in nine cases of arsphenamine dermatitis. The dermatitis consisted of erythrodermia and papular, papulovesicular and purpuric exfoliative eruptions. The duration of the dermatitis varied from two to fourteen days. Eight patients showed delayed blood sugar curves and, in addition, four revealed a high fasting blood sugar content. One patient had diabetes. The blood sugar changes could be related to the extent and degree of the dermatitis but not to the type and duration of the eruption. The author suggests that the cause of the blood sugar changes is primarily associated with impairment of the glycogen metabolism of the liver brought about by a deleterious effect of arsphenamine on this organ. He recognizes, however, that the dermatitis itself may be a contributory factor.

Rupture of Uterus During Pregnancy.—Shen calls attention to the fact that spontaneous rupture of the uterus is one of the extremely rare complications of pregnancy. The most common cause of rupture before the onset of labor is probably that of a weak uterine scar following cesarean section. The other common cause is that of a direct injury to the abdominal wall. A case described by the author would seem to fall into this second group etiologically. Despite the fact that the patient herself was conscious of no severe discomfort at the time of receiving a blow in the abdomen, it seems that the blow must have been the cause of the rupture.

Archives des Maladies du Cœur, Paris

25: 321-384 (June) 1932

*Two New Clinical Signs of Auricular Tachycardia (Auricular Flutter). C. Laubry, D. Routier and A. van Bogaert.—p. 321.
Auriculoventricular *Dissociation by Double Command.* E. Gérandel.—p. 339.

New Clinical Signs of Auricular Tachycardia.—Laubry and his associates state that there are two clinical signs which permit diagnosis of auricular flutter. They are: (1) anisosphygmia, or inequality of the pulse, and (2) appearance of a third sound in diastole giving a rhythm of three sounds characterized by a continuous variability. The anisosphygmia is of two types: the periodic or alternating type and the aperiodic or irregular type. The alternating type is frequent in regular and rapid flutter. In irregular anisosphygmia the amplitude of all the pulsations is unequal. Irregular anisosphygmia, well known in complete arrhythmia, is also clearly perceived in slight irregularities which escape auscultation and guides the diagnosis toward auricular flutter. In certain regular flutters an alternating or variable oscillation of the pulse takes on the appearance of irregular anisosphygmia. The rhythm of three variable sounds is composed of two normal sounds, to which is added a third dull sound which gives a sensation of rising to the hand or ear applied at the level of the beating of the apex of the heart against the chest wall. The relation of the superadded sound to the two normal sounds is extremely variable. For the normal rhythm is substituted either a doubling of the first sound or a presystolic or protodiastolic gallop. In long diastoles a fourth dull sound is heard comparable to the one heard in block. This rhythm of three variable sounds is not a characteristic sign of flutter, yet it is of diagnostic value. Although it actually exists independently of auricular activity, the latter contributes in large measure to its production, and its variability is due to the anisochronism, even if slight, of the flutter. From the standpoint of prognosis, the rhythm of three sounds has the same significance as the usual gallop because it is the expression of an abnormal state of the ventricle which frequently results from a myocardial miopragia.

Lyon Chirurgical

29: 401-520 (July-Aug.) 1932

*Rôle of Sympathicus in Pathogenesis of Edema. F. Brandao.—p. 401.
Remote Results of Treatment of Tuberculous Ostearthritis by Excision of Lesions and Immediate Osteoperiosteal Intra-Articular Graft. R. Leriche and P. Stricker.—p. 421.
Diffuse Ascending Osteitis in Amputation of Thigh for Osteomyelitis. J. Cottalorda and P. Huard.—p. 446.
Case of Human Anthrax Cured by Serum Therapy. L. Bérard and R. Desjacques.—p. 456.

Rôle of Sympathicus in Pathogenesis of Edema.—Brandao reports the case of a woman, aged 25, with severe, painful edema of the left hand and forearm which developed without trauma, inflammation or poisonous bite of an animal and resisted all medical treatment. Periarterial sympathectomy resulted in complete disappearance of the edema in three days, but it reappeared and in eighteen days had attained the same degree as before the operation. Extirpation of the first and second thoracic sympathetic nerve ganglions resulted in rapid disappearance of the edema, but six months later there was another recurrence, this time limited to the hand. The edema receded immediately after extirpation of the remainder of the left cervical sympathetic nerve, including the superior ganglion, and the patient is still well three months after the operation. A similar case of Leriche is cited. The author, in agreement with the majority of investigators, believes that peripheral edema of unknown cause is due to a disturbance of the sympathetic nervous system; but he does not agree with them that the mechanism through which this is brought about is one of vasodilation or vasoconstriction. He thinks that the sympathetic nerve, besides its rôle of vasodilation, acts directly on the vascular endothelium by means of a vasosecretory action capable of making the fluid exchange oscillate. Like Leriche and Fontaine, he admits the existence of two edematogenic reflexes, one short and one long. The edema in his case and Leriche's was the result of morbid exaggeration of the long reflex, suppression of which by surgical intervention made the edema stop immediately. Morbid exaggeration of short reflexes is seen in edemas following phlebitis. In both cases, change of the integrity of the venous wall plays the principal part in the genesis of the disturbances appearing in the extremities. As far as the short reflex is concerned, he thinks there are peripheral centers which suffice to maintain the fluid exchange without any connection with the bulbomedullary centers. The disappearance of the edema after the cervicodorsal gangliosympathectomy in the cases reported demonstrates the possibility of maintaining normal regulation of the lacunar or lymph spaces by action of a mural apparatus left to itself, once the abnormal excitation transmitted to it by the seriously altered long reflex is suppressed. In conclusion, the author states that in his case resection of the entire sympathetic chain was probably unnecessary; division of the branches communicating with the brachial plexus would have sufficed for the treatment of the edema, but the former method was undertaken because it was easier and more certain of success.

Presse Médicale, Paris

40: 1069-1092 (July 9) 1932

General Anesthesia by Rectal Oleo-Etherization. A. Chalier.—p. 1069.
*Myelogenous Leukemia with Relative Polymorphonuclear Neutrophilic Leukocytosis. P. Emile-Weil and G. Sée.—p. 1071.

Myelogenous Leukemia with Relative Polymorphonuclear Neutrophilic Leukocytosis.—Émile-Weil and Sée state that there is a form of myelogenous leukemia with all the clinical characteristics of this disease but differing from the common form by the absence of a variegated leukocytosis and its replacement by a polymorphonuclear neutrophilic leukocytosis. The first of two cases reported concerns a woman with enormous splenomegaly operated on because the case was not diagnosed as leukemia. The spleen was typical of myelogenous leukemia and contained only mononuclear leukocytes, while in the blood with a leukocyte count of 35,000 to 40,000 there were 77 per cent polymorphonuclear leukocytes and only 5 per cent myelocytes; there was a strong normoblastic reaction. Following splenectomy the blood gradually assumed the character of a real leukocytosis and the patient died seven months after intervention. Recognition of this form of myelogenous leukemia is of practical importance to the clinician because of the grave danger incurred by surgical intervention and the extremely beneficial influence of roentgen therapy. This type of leukemia differs from primary splenomegaly in that it is more constantly accompanied by hepatic hypertrophy from the start, the sclerosed organs are firm but not hard, there are fewer functional symptoms, and there is a high polymorphonuclear leukocytosis with myeloid reaction never found in primary splenomegaly in the absence of infection. The authors consider this form of leukemia a preliminary stage of ordinary leukemia. From the theoretical standpoint it shows the existence of a leukemia in which the blood does not reflect the cellular picture of the hematopoietic centers, and the myelocytes, granular or not, are capable of continuing their evolution to their adult form in the blood stream.

Revue Médicale de l'Est, Nancy

60: 425-492 (June 15) 1932

Valgus Flatfoot. M. Froelich.—p. 425.
Minimum Amputation in Lesions of Tarsus. A. Hamant and P. Chalnot.—p. 440.
*Deformation of Bones in Tetanus. Mutel.—p. 458.
*Hypertrophic Stenosis of Pylorus in Nursling. L. Grimault and E. Wilwertz.—p. 464.

Deformation of Bones in Tetanus.—Mutel reports a case of posttetanus sternal deformation characterized by abnormal convexity of the lower portion of the sternum with a lateral flattening of the anterior segment of the ribs resulting in an appearance of marked chicken breast. The patient had retained the attitude of orthotonus, instead of the more frequent opisthotonos, during the illness. The sternal deformation was the result of complex muscular actions; the chest muscles projected the sternum forward, the recti abdomini pulled the xyphoid process forward and the abdominal muscles flattened the ribs laterally. While all tetanus patients present muscular contraction, bony deformation is rare. The intensity of the muscular contraction and convulsive attacks of tetanus are capable of provoking deformities by attrition of the bony tissue, but only in the presence of a preexisting fragility of the bone tissue. Many explanations have been given by different authors for the origin of this fragility. As almost all the cases reported concern adolescent individuals, the author thinks the predisposing cause may be the malleability of the skeleton at that age, or the condition of bony dystrophy more or less discrete which is designated by the name of late rickets.

Hypertrophic Stenosis of Pylorus in Nursling.—On the basis of personal observations and a study of the literature, Grimault and Wilwertz state that when a nursling who has been previously well suddenly presents disturbances consisting in projectile vomiting, obstinate constipation with rare meconial stools, oliguria and rapid loss of weight without infectious phenomena, one should think of hypertrophic stenosis of the pylorus and make a roentgenologic examination to confirm the diagnosis. Medical treatment, consisting in more frequent and shorter nursing periods and the administration of antiemetics and antispasmodics, should be instituted; if it fails, pylorotomy should be performed immediately. This operation will be followed by *immediate and complete cure. The authors report* a case of hypertrophic stenosis of the pylorus in a nursling, aged 35 days, which presented all the diagnostic symptoms of this disease except that the pyloric tumor could not be palpated, which is not surprising, as the pylorus in nurslings is sometimes below the liver, even behind the stomach. Roentgenologic examination showed that none of the barium ingested had passed into the intestine in twenty-four hours, thereby confirming the diagnosis. On intervention, a pyloric tumor larger than an olive was found. Pylorotomy was followed by cessation of vomiting and a rapid gain in weight. The authors also report a case of pseudostenosis which resulted from pylorospasm without the existence of a pyloric tumor. The case responded to the dietetic and medical treatment outlined. The response to medical treatment differentiates pylorospasm from stenosis due to a pyloric tumor.

Riforma Medica, Naples

48: *933-972 (June 18) 1932*

Concealed Traumatic Illnesses of Locomotor System. H. Burckhardt. —p. 935.
Hyperbilirubinemia Due to Injection of Epinephrine in Tuberculosis. G. Ferrari.—p. 942.
*Spontaneous Fragmentation of Urinary Calculi. A. Paladini.—p. 946.
Can Roentgenographic Investigation of Human Placenta Be Attained? A. Tommaselli.—p. 954.

Spontaneous Fragmentation of Urinary Calculi.—Paladini states that spontaneous fragmentation of urinary calculi rarely occurs. He cites a patient with thirteen entire calculi and 930 fragments. The fragments were generally pyramid-shaped or dome-shaped. Each calculus was divided into large or many small fragments. Chemical investigation revealed that 70 per cent of the entire mass consisted of uric acid without ammonium urate and free carbonic acid with little organic substance. The fragmentation in the author's case continued over a period of years; the bladder contraction of the patient did not in any way determine fragmentation, because the patient had chronic prostatitis with bladder distention and no symptoms of irritation of the bladder. He cites the following theory of Ord as the most satisfactory explanation: The disintegration is due to a liquid filtrating through the strata of the calculus, arriving at the nucleus and causing the swelling of the organic skeleton of the calculus, which in turn causes disruption.

Rivista di Patologia e Clin. d. Tubercolosi, Bologna

6: 449-540 (June 30) 1932

Filtrable Forms of Tubercle Bacilli and B C G Vaccine. T. de Sanctis Monaldi.—p. 449.
*Sites of Predilection of Pleural Adhesions. E. Tarantola.—p. 473.
Morphology of Capillaries and Vascular Fragility in Patients with Pulmonary Tuberculosis. A. Corbia.—p. 486.
Clinical Determination of Latent Forms of Tuberculosis in Italian People. A. Muggia.—p. 497.
Tuberculous Meningitis at the Beginning of Pneumothorax Treatment. A. Culotta and A. Cinquemani.—p. 503.
*Serum Coagulation of Weltmann in Pulmonary Tuberculosis in Comparison with Erythrocyte Sedimentation Speed. G. Nannini and B. Davolio Marani.—p. 515.

Sites of Predilection of Pleural Adhesions.—Tarantola states that pleural adhesions occur more frequently on the upper and smaller lobe of the lung and especially at the apex or the posterolateral surface up to the interlobar space. Occasionally the site of the adhesions is at the base of the upper lobe. The lower lobe is rarely a site of adhesions but its superoposterior, upper and diaphragmatic surfaces are sometimes predisposed to them. Adhesions seldom occur on the median lobe. They are frequently found between the leaves of the interlobar pleura. The sites of adhesions are found as a rule on those parts of the lungs presenting tuberculous lesions. The author states that adhesions are often spread by the action of the pneumothorax but that they do not act harmfully on the underlying parenchyma.

Serum Coagulation of Weltmann in Pulmonary Tuberculosis.—Nannini and Davolio Marani present the results of a study of Weltmann's serum coagulation on forty-nine patients with fibrous, mixed and exudative tuberculosis. They use the following technic: To an equal amount of serum (0.1 cc.) they add 5 cc. of a solution of calcium chloride diluted in arithmetical progression from 0.1 per hundred to 0.1 per thousand; *for this they prepare ten solutions which contain for 100 cc. of* distilled water 1 cc. of calcium chloride at 10 per cent, and then 0.9 cc., 0.8 cc. and so on until they arrive at 0.1 cc., which gives the greatest dilution and corresponds to 0.1 per thousand. They then add 0.1 cc. of serum to 5 cc. each of these solutions of calcium chloride and boil the whole lot in a water bath for fifteen minutes, during which time the tubes must be shaken continually. The authors state that the reaction of Weltmann demonstrates a displacement to the right in productive and nonactive processes and a displacement to the left in exudative progressive forms. In a combination of exudative and fibrous processes, the Weltmann reaction can give the result only of a present and prevalent process. A normal result can be obtained in cases of tuberculosis tending toward cirrhosis and of stationary and cavitary tuberculosis if the flare up from the cavern is practically over. The erythrocyte sedimentation speed is always accelerated in pulmonary tuberculosis. The lower values are in serious destructive forms, the higher in forms tending toward sclerosis. Serum coagulation reveals best the fundamental anatomopathologic state of the disease form, while the reaction of sedimentation is the exponent of humoral conditions of the organism at the expense of a greater or lesser bacillary intoxication. The two reactions are almost identical in their dependence on an equilibrium disturbance of protein fractions (increase of globulin, diminution of serum albumin). By removing a certain amount of fibrinogen in the process of coagulation and by precipitating some of the globulin with calcium chloride, one finds the serum albumins in so weak a proportion as to necessitate for coagulation a greater amount of calcium salt (increase of electrolytic threshold). The internal mechanism of serum coagulation in fibrous formation appears more obscure when it happens in the lower dilutions beyond the limit of normal subjects. In conclusion the authors state that the sedimentation speed can serve to correct or complete the results of the reaction of Weltmann but that in most cases the latter is of greater value for the diagnosis of the form of the disease.

Archivos de Medicina Cirugía y Espec., Madrid

35: *509-528 (June 25) 1932*

*Hyperstereoroentgenography in Differential Diagnosis of Round Intrathoracic Shadows. F. R. Partearroyo, J. Miñana and F. Blanco.—p. 509.
Hepatosplenography Following Injection of a Thorium Dioxide Preparation. M. F. Arce.—p. 515.

Hyperstereoroentgenography in Diagnosis of Round Intrathoracic Shadows.—Partearroyo and his associates state that, during the performance of a roentgen examination of the chest, both the pathologic formations and the vessels intercept the roentgen rays and produce a shadow in the roentgenogram. If one or several vessels are orientated in the same direction as that of the roentgen rays, they project themselves as round shadows in the roentgenogram. In clinical practice, vascular shadows have been interpreted, sometimes, as caused by tuberculous nodules. The differentiation between vascular and *nodular shadows may be made by* the characteristics in the roentgenogram: general localization, number of images, seat, form and homogeneousness of the shadow However, the indispensable condition to consider a shadow as given by a tuberculous nodule (and hence as having a pathologic meaning) is its stability, that is, that its dark color has always the same intensity in serial roentgenograms. The authors emphasize that they do not mean that all pulmonary shadows of various sizes are always vascular projections, although they call attention to the fact that not all the round shadows observed in the hilus and parahilus are given by tuberculous nodules; that is, that the shadows of small assumed tuberculous nodules in the peripheral area of the lung are not always of a hematogenic origin. Frequently the vessels project like shadows that are similar to those given by nodules of a hematogenic origin Hyperstereoroentgenography is the most perfect method to differentiate these types of shadows in the roentgenogram of the chest

Deutsche medizinische Wochenschrift, Leipzig

58: 997 1038 (June 24) 1932

Cerebral Activity of the New Born W Catel —p 997
Healing Prospects of Duodenal Ulcer in Internal Treatment A Böhme —p 1002.
*Clinical Aspects of Acute Calcareous Bursitis of Shoulder K H Erb and W. Friedriszik —p 1004.
New Method of Histamine Treatment in Painful Disturbances of Muscles, Nerves and Joints E Bettmann —p 1006
Experiences with Cataphoretic Histamine Treatment and New Points of View for Its Application S Vas —p. 1009
Apparatus for Capillary Photography Anywhere on Surface of Body K A Bock —p *1012*
Treatment of Rickets L Loeffler —p. 1013
Therapy of Disorders of Skin W. Osterweil —p 1014
Prophylaxis and Therapy of Anemia in Children K Ochsenius —p 1015

Acute Calcareous Bursitis of Shoulder.—Erb and Friedriszik point out that since Duplay described periarthritis humeroscapularis there has been a tendency to resort to this diagnosis in many of the disorders in the region of the shoulder joint. The description of four typical cases of acute calcareous bursitis shows that the pain in the shoulder frequently develops without preceding trauma or after a slight one The nocturnal exacerbation of the pain is especially characteristic, and the patients are unable to use the arm. Abduction is impossible on account of the severe pain The point particularly sensitive to pressure is localized by most patients on the tuberculum majus or directly below the acromion Roentgenoscopy corroborates the diagnosis of calcareous bursitis by revealing a shadow about the size of a bean either caplike above the tuberculum or in the space between tuberculum and acromion. Treatment with hot air or, better yet, with diathermy quickly counteracts the pain and restores the function of the arm within several weeks. Roentgenoscopy reveals that the calcium depot soon begins to disappear, and later examinations show complete disappearance. The authors point out that there are also cases in which calcium depots are located in the subdeltoid space, particularly on the tendon of the supraspinatus, but these depots have, at least in the beginning, no connection with the bursae If after treatment with heat or with diathermy the acute pain and also the calcium depot disappear, the disorder was acute calcareous bursitis; but if this is not the case tophaceous gout may be assumed, for which, in case of failure of conservative therapy, operative removal of the calcium focus is advisable

Deutsche Zeitschrift für Chirurgie, Berlin

236: 269 380 (June 15) 1932

Modification of Experimental Fat Embolism by Medicaments W Vogel —p 269
Pancreatic Cysts: Etiology, Results of Surgical Treatment and Relation to Later Development of Diabetes Mellitus F Bernhardt —p 281.
*Artificial Hardening of Anterior Mediastinum H Polano —p 300
Total Mastoneoplasty Following Amputation of Mamma W Reinhard —p 309
Clinical Aspects and Treatment of Pulsating Exophthalmos F Loos and F J Irsigler —p 318
Fractures of Cervical Vertebrae M aesecke —p 329
Tuberculosis of Cortex of Calcaneus C Blumensaat —p 349
Noteworthy Sequelae of Accidental Injury of Ligamentum Patellae K H Erb —p 357
Dental Prosthesis as Cause of Perforation of Palate. K H Erb —p 363

Artificial Hardening of Anterior Mediastinum.—According to Polano, the main cause of the occasional failures in the surgery of the sternum is, besides the circulatory weakness, the mediastinal flutter. The unphysiologic mobility of the mediastinum causes severe circulatory and respiratory disturbances, for a normal circulation is dependent on the immobility of the mediastinum, as it exists before the thorax is opened. To preserve this immobility after the equilibrium has been disturbed two methods are possible; namely, the use of Sauerbruch's cabinet and artificial hardening of the mediastinum. The latter method, which Rehn first demonstrated in animal experiments, becomes understandable when the anatomic conditions are considered, *which the author investigated carefully on* human cadavers. He explains the significance of the anterior mediastinal cavity for the circulation, particularly the superior vena cava The various anatomic relations of the pericardium to the manubrium and corpus sterni lessen the rigidity of this upper portion of the mediastinum, but by a technic of injection it is possible to make the mediastinum firm The fact that this can be done in human subjects provides a valuable aid in preventing serious pressure disturbances in interventions on the thorax, and thus the artificial hardening represents a helpful addition to the Sauerbruch cabinet

Klinische Wochenschrift, Berlin

11: 1049 1088 (June 18) 1932

Significance of Thyroid for Course of Ray Reaction of Skin F Ellinger. —p 1049
"Readily Split Off" Blood Iron and Blood Pigment G Barkan —p 1050
Coprohematology Clinical Examination of Feces for Presence of Deuteroporphyrin I Boas —p 1051
Further Observations and Investigations on Postvaccinal Encephalitis A Eckstein, F Stoli, H Herzberg Kremmer and K Herzberg —p 1053
*Contrast Examination of Spleen and Liver with Thorium Dioxide F Buchner —p 1058
Results of Animal Experiments with Viosterol G Pallaske —p 1060
*Reduced Resistance of Erythrocytes in Intestinal Disorders H Schwarz and M Taubenhaus —p 1063
Examination and Estimation of Ferment Preparations S Hermann and P Neuschul —p 1065
*Influence of Disturbances of Acid Base Equilibrium on Development of Edema J Fliederbaum —p 1067
Acetonemic Vomiting in Children W Heymann —p 1069
Change of Iso Electric Point of Hemoglobin and Its Relation to Acid-Base Metabolism J Glass and G Groscurth —p 1070
Changes in Physicochemical Characteristics of Hemoglobin and in Acid Base Equilibrium Following Extirpation of Spleen in Dogs G Groscurth and J Glass —p 1071
Tuberculous Rheumatism J Bauer —p 1071

Contrast Examination of Spleen and Liver with Thorium Dioxide.—Buchner reports observations which indicate that a considerable quantity of the thorium dioxide preparation that is introduced for visualization of the spleen and liver cannot be eliminated from the organism The retention produces functional weakening of the reticulo-endothelial system and of the lymph follicles of the spleen Whether serious late complications will result from the blockage will require further investigations

Reduced Resistance of Erythrocytes in Intestinal Disorders.—It is pointed out by Schwarz and Taubenhaus that a change in the resistance of the erythrocytes, particularly a reduction of the resistance toward sodium chloride solutions, is generally considered characteristic for hemolytic icterus However, so far the literature has no reports on a decreased resistance of erythrocytes in gastro-intestinal disorders. For this reason the authors feel justified in reporting the clinical histories of two patients with severe gastro-intestinal disturbances, in whom there existed hypochromic anemia, hypocholesteremia and a considerable reduction in the resistance of the erythrocytes toward physiologic solution of sodium chloride Both patients had a tumor of the spleen, but there were no signs whatever for hemolytic icterus The causes of the decreased resistance of the erythrocytes was not demonstrable, either clinically or experimentally. But the authors think that the reduced cholesterol content may be of significance, since several investigators have called attention to the relation between the cholesterol content of the blood and the resistance of the erythrocytes.

Disturbances of Acid-Base Equilibrium and Edema.—In summing up his observations, Fliederbaum writes as follows: 1. Patients with edema have a tendency to retain acids and bases in their tissues; the retention of acids is primary, that of alkalis, resulting from their attraction by the excess of acids, is secondary (neutralization retention). 2. The local acidosis of the skin and of the subcutaneous connective tissue increases the affinity for water; the local alkalosis decreases it. 3. In patients with edema, acids increase the retention of water and alkalis decrease it.

Medizinische Klinik, Berlin

28: 849-884 (June 17) 1932

Is Sex Specific Incretion Produced by Interstitial Cells of Gonads? H Stieve—p 849
Dietary Treatment of Patients with Circulatory Disturbances H Schwarz and H Dibold—p 857
Clinical Aspects of Hay Fever Lucie Adelsberger and H Munter—p 860
*Oral Sugar Therapy in Icterus Gravis R Scholl and P Steiner—p 864
Treatment of Chronic Gouty Eczemas, of Frost-Bites and of Angiospasms of Extremities with Warmth R Sachs—p 865
Electrocardiographic Demonstration of Fatal Ventricular Fibrillation in Case of Thrombosis of Left Coronary Artery R Leiser—p 866

Oral Sugar Therapy in Icterus Gravis.—Thinking that it would be a distinct gain to be able to counteract severe disorders of the liver not only by the combined administration of dextrose and insulin but also by oral administration of sugar alone, Scholl and Steiner studied the efficacy of sugar without insulin in diseases of the liver that resemble acute yellow atrophy. They were induced to try this by the observation that rats which were given large amounts of carbohydrates were less susceptible to phosphorus The authors decided to employ sugar therapy in patients who after prolonged arsphenamine medication had developed a disturbance which can be designated as subacute yellow atrophy of the liver. The patients received a diet of various farinaceous foods, and in addition they were given daily from 30 to 60 Gm of levulose The six patients who were treated in this manner either showed considerable improvement or were completely cured

Monatsschrift für Kinderheilkunde, Berlin

53: 301-482 (June 9) 1932

Complement Fixation Reaction in Tuberculosis (Activity Diagnosis) K G Heymann and Ellen Nussbaum—p 301
Pubertas Praecox in Osteodystrophia Fibrosa Vera Gaupp—p 312
*Carbon Dioxide in Respiratory Disturbances of the New Born and of Premature Infants A Peiper and O Cammann—p 323
Outcome of Genuine Nephrosis Beginning During Childhood Ilse Abraham—p 329
Behavior of Basal Metabolism During Short and Prolonged Fever B Essig—p 335
Behavior of Basal Metabolism in Underweight Nurslings B Essig—p 343
Problem of Premature Infant J Schoedel—p 349
*Differential Diagnosis of Thrombosis of Splenic Vein Helga Schmiedeberg—p 361
Further Experiences with Whooping Cough Vaccine H Schmidt and M Weichsel—p 373
Prophylaxis and Therapy of Whooping Cough by Means of Vaccine. Baumler—p 378
Prognosis of Diphtherotoxic Cardiac and Circulatory Disturbances During Childhood F Thoenes—p 381
Serologic Demonstration of Active Tuberculosis M Weichsel—p 390
*Contagiousness of Icterus Catarrhalis Before Manifestation of Its Symptoms Susanne Seyffarth—p 398
Animal Experiments on Enteral Production of Intoxication in Exsiccosis Alice Chassel and S Rosenbaum—p 399

Carbon Dioxide in Respiratory Disturbances of the New-Born.—After mentioning the measures that are usually employed to counteract the respiratory disturbances of the new-born, Peiper and Cammann call attention to the use of carbon dioxide mixtures, as recommended by Yandell Henderson. In order to determine the influence of carbon dioxide on the respiration of the new-born, the authors studied its action on premature infants because the latter are especially subject to respiratory disorders The respiratory changes that took place under the influence of carbon dioxide mixtures were graphically recorded It was found that the changes were not regular. In a number of cases shock reactions were noted in the beginning of the administration, and there were also permanent reactions. Occasionally, interruptions of the respiration were observed. In infants in whom there was a gasping for breath, carbon dioxide was less effective than other measures, such as artificial respiration and the administration of a lobelia preparation or of epinephrine. Thus the authors are not convinced that the respiratory disturbances in nurslings can be effectively treated with carbon dioxide.

Differential Diagnosis of Thrombosis of Splenic Vein.—On the basis of three case reports, Schmiedeberg shows that (1) even if most or all of the clinical manifestations of thrombosis of the splenic vein are present, this is not an absolute proof that it really exists, and (2) whenever these symptoms do exist, no matter whether they are or are not caused by a thrombosis of the splenic vein, the removal of the enlarged spleen gives the best prospects for improvement or cure

Contagiousness of Icterus Catarrhalis Before Manifestation of Symptoms.—Seyffarth states that although the length of the incubation period in icterus catarrhalis has been repeatedly discussed, nothing has so far been said as to whether the infecting person transmits the disease during the incubation period, the prodromal period or after the symptoms have become manifest. For this reason the author feels justified in reporting the clinical history of a child who was infected with icterus catarrhalis by a person in whom the prodromal stage began twelve days later and the icterus became manifest eighteen days later. In the child the prodromal stage began twenty-three days following the contact with the infecting person, and the icterus became manifest on the twenty-sixth day

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

102: 233-430 (June 24) 1932

*Roentgenologic and Anatomic Investigations on Backache, with Especial Consideration of Sacralization E Philipp—p 233
Highest Number of Uterine Contractions in Spontaneous Delivery of Primiparas with Narrow Pelvis and Premature Rupture of Bag of Waters E Frey and H. Rüfenacht—p 262
Highest Number of Uterine Contractions in Spontaneous Delivery of Multiparas with Narrow Pelvis and with Exclusion of Premature Rupture of Bag of Waters E Frey and B Reger.—p 297
*Bacterial Flora of Uterine Cavity During First Week of Puerperium E Petrowa—p 335
Pathology of Sarcomas of Female Sex Organs, Particularly of Uterus W Haase—p 344
Primary Scar Carcinomas of Vagina B Ottow—p 350
Aspects of Cerebral Air Embolism in Induced Abortion C Neller—p 374

Backache, with Especial Consideration of Sacralization.—Philipp points out that when gynecologic disorders are absent it is usually difficult to detect the cause of backache in women Therefore, if a careful gynecologic and general examination does not reveal the cause, he advices roentgenologic examination He himself did this in a large number of cases and in order to be better able to evaluate the roentgenograms he compared them with photographs of pelves from an obstetric collection In discussing sacralization and lumbarization he states that he observed all the successive stages, beginning with simple anomalies of the transverse process and ending with bilateral sacralization of the fifth lumbar vertebra, in which there exist five instead of four pairs of sacral foramina. Observations on a number of women convinced him that those patients complain of backache in whom the vertebral statics are disturbed, in whom demonstrable articular changes exist, or in whom these two conditions concur. However, in patients with coalescence of the vertebrae but without disturbed statics or without articular changes, backache may be absent In discussing the prognosis the author states that whenever the pain concurring with sacralization is caused by static disturbances, adaptation and with it disappearance of painfulness can be expected after a shorter or longer period Articular pains may persist for a number of years, but after that they likewise disappear In the last part of the article the author emphasizes once more the great value of roentgenoscopy.

Bacterial Flora of Uterus During First Week of Puerperium.—In reviewing the literature on the bacterial contents of the uterine cavity during the puerperium, Petrowa found that the majority of the earlier studies were made with the aerobic methods of cultivation, whereas the micro-organisms of the vulva and of the vagina are primarily anaerobic. She thinks that this explains the contradictory results of some of the earlier investigators, and in the course of her studies on forty healthy puerperas, each of whom was subjected to two tests, she employed the newest methods for the cultivation of anaerobic organisms. In 10 per cent of the cases, both tests were negative, and in 35 per cent one test was negative

Micro-organisms enter the uterus most frequently in the first twenty-four hours of the puerperium, but in some instances they enter on the third, fourth or fifth day. In some instances the types of micro-organisms change, or several are present at the same time. Such variations are probably due to bactericidal powers of the uterus, to discharge of the fluid and to the antagonism of the micro-organisms to each other. The invasion of the uterus by pathogenic organisms does not necessarily cause clinical changes in the course of the puerperium.

Zeitschrift für Kinderheilkunde, Berlin

53: 1-120 (June 16) 1932

Physiology of Digestion in Nurslings: Ferment Content of Digestive Organs in Dystrophic and Dyspeptic Conditions. O. Naumann.—p. 1.
*So-Called Hepatolienal Disorders in Children. M. S. Massloff.—p. 21.
Viscosimetric Investigations on Absorption of Water by Plasma Colloids. J. Jochims.—p. 42.
Idem. J. Jochims.—p. 59.
Clinical Aspects and Pathogenesis of Acetonemic Vomiting in Children. L. Salomonsen and H. Bjelke.—p. 66.
Changes in Magnesium Content During Different Ages, Particularly in Rickets and Tetany During Childhood. E. Krüger.—p. 83.
Clinical Hematology During Childhood: Hepatosplenomegalies with Gastro-Intestinal Hemorrhages. E. Stransky.—p. 92.

So-Called Hepatolienal Disorders in Children.—Studies on 127 cases convinced Massloff that, in the development of the hepatolienal syndrome, the endogenic factors, a congenital weakness and a constitutional predisposition play an important part. The different forms of hepatolienal disorders have in common the involvement of the connective tissue apparatus, and observations indicate that the changes in the connective tissue are not secondary but rather primary. The designation of hepatolienal disorders is therefore not entirely correct, since liver and spleen are important only so far as the pathologic processes of the connective tissue become manifest especially in them. Essentially these disorders are not diseases of the liver and spleen but rather of the connective tissue or, more correctly, of the entire mesenchyme, for which reason the author designates them as mesenchymoses. He differentiates various forms of mesenchymoses, and in discussing the practical results of his studies he points out that in the combat of the hepatosplenic disorders the entire organism should be considered and the object should be general strengthening of the organism, the reduction of the predisposition and the elimination of injurious factors from the milieu. Children who deserve especial care and observation are those with hereditary deficiencies (alcoholism, mental disturbances, general debility of the parents and syphilis), as well as children from large families with a high mortality rate. Endangered are also children with backward physical development, with dry skin and with decreased turgor. Another group of children deserving especial consideration are those with the various diseases of the blood (splenic anemia, thrombopenia), with chronic constipation, with diarrheas, with enlarged liver and spleen and with general debility, also children who have passed through the so-called icterus simplex. For such children hydrotherapeutic measures, gymnastics, massage and light sports are advisable. Infections should be guarded against, and alcohol and large quantities of meat should be avoided.

Zeitschrift für Tuberkulose, Leipzig

65: 1-96 (June) 1932

Tuberculosis in the Aged: Significance for Social Hygiene. J. E. Kayser-Petersen.—p. 1.
Clinical Proof for Efficacy of B C G Vaccination in Children. A. Calmette.—p. 10.
Correlation of Allergy and Tuberculous Infection: Experiments on Action of Dissociated Tubercle Bacilli. E. G. Schnieder.—p. 15.
*Roentgen Symptomatology of Intestinal Tuberculosis. J. Rother.—p. 24.
Comparative Physiologic Examination of Working Capacity in Healthy Persons, in Patients with Pneumonoconiosis and in Those with Tuberculosis. W. W. Efimoff, R. A. Radkewitsch, M. M. Eljaschberg and A. W. Efimowa.—p. 37.
Bilateral Pneumothorax Treatment in Pulmonary Tuberculosis. S. von Záborszky.—p. 49.
Expectorant Treatment of Disorders of Respiratory Organs. F. Köhler.—p. 55.

Roentgen Symptomatology of Intestinal Tuberculosis.—Rother states that the general clinical observation does not permit a definite decision about the tuberculous involvement of the intestine, for postmortem examinations have revealed that tuberculous patients who during life had had severe intestinal symptoms were free from tuberculous lesions, whereas others who had had slight symptoms showed severe lesions. Even the presence of tubercle bacilli in the feces is not demonstrative for intestinal tuberculosis, since in open tuberculosis there is the possibility of swallowing sputum containing bacilli. Intestinal roentgenoscopy of 150 tuberculous patients convinced the author that in the majority of cases the presence, type and location of tuberculous lesions of the intestine are revealed by this method. In discussing the technic of intestinal roentgenoscopy, he evaluates the two methods of introduction of the contrast medium: the contrast clysma and the contrast meal. He recommends beginning with the contrast clysma, because it is quicker and usually gives a good roentgenogram of the large intestine. While the medium is being introduced, the outline, haustrum formation and motility of the large intestine are carefully observed before the roentgen screen, and the sensitiveness to pressure is likewise watched. The author further describes the roentgenologic outlines of the various tuberculous lesions that are observed on the intestine: swelling or ulcerations of the mucous membrane, the aspects of the so-called polypous-dysenteric intestinal tuberculosis, further stenoses, prestenotic dilatations, and particularly the changes at the site where large and small intestine join. Although the introduction of the contrast medium by means of the clysma reveals the condition of the large intestine, it is nevertheless advisable to examine the small intestine; this is best done by means of oral administration of the contrast medium. After describing characteristic tuberculous changes the author gives several case reports and shows roentgenograms of certain lesions. He emphasizes the significance of roentgenoscopy particularly for surgical treatment.

Zentralblatt für Chirurgie, Leipzig

59: 1553-1616 (June 25) 1932

*New Method for Blood Transfusion. R. Boller.—p. 1554.
Which of Numerous Surgical Methods Should be Employed in Hallux Valgus. J. Hass.—p. 1561.
*New Type of Bone Suture. J. Petřivalský.—p. 1564.
Protective Clamp for Stump of Appendix in Retrograde Extirpation. O. Struck.—p. 1568.
Treatment of Inguinal Hernia According to Bassini's Method. G. Ricci.—p. 1569.
Invagination Following Gastro-Enterostomy. A. Angerer.—p. 1572.

Method for Blood Transfusion.—In the introduction Boller enumerates the requirements of a good technic for blood transfusion; he thinks that none of the numerous methods fulfil all of them. He discusses particularly some of the disadvantages of the addition of sodium citrate to the blood and shows that although it does not, as some assert, injure the erythrocytes, it causes more severe fever reactions than unchanged blood; the fact that the blood comes in contact with the air is likewise a disadvantage. The author then describes his own method of blood transfusion, which he says can be employed by any physician who has a good technic of intravenous injection. In this method the blood is withdrawn with syringes from the vein of the donor and introduced directly into the vein of the patient. To make it possible to transfuse by means of thin cannulas larger quantities (500 cc. and more), a method had to be found to prevent clotting. This was done by inserting between the needle and the syringe a special device that makes it possible to rinse the cannula with physiologic solution of sodium chloride while the blood stream is interrupted during the change of syringes. The author gives a detailed description of the device, which is the same for the needle of the donor and of the recipient, and then describes the technic of the transfusion, which requires the presence of two physicians and of a nurse. A transfusion of 500 cc. can be completed in from five to eight minutes, but if the patient is extremely weak it can be given more slowly. The author employed this method in eighty cases and never observed injurious effects either on the donor or on the patient.

New Type of Bone Suture.—After discussing the indications for a bone suture, Petřivalský describes and illustrates his method. With an electric drill, oblique canals are made through the compact mass of the bone above and below the fracture. Through these canals a rust-free steel wire is passed, crossed in the figure-of-eight manner and then tightened with specially constructed forceps In evaluating the advantages of this wire suture, the author emphasizes not only that the crossed wire can be tightened readily but also that the parts of the bone are thereby approximated exactly. Where the wire touches the periosteum this is opened so that the wire is mostly subperiosteal, but otherwise the periosteum should be preserved as much as possible If the bone is narrow one wire suture is sufficient, but in the case of the humerus or of the femur or of the flat cranial bones at least two sutures are necessary. The figure-of-eight wire suture can be employed also in case of splintering of the bone Another advantage of this method is that the wire passes only through the compact portion of the bone and the marrow and the formation of a marrow callus is not disturbed The author has employed this method for about a year, and he is entirely satisfied with the results He does not claim that it is the best method but emphasizes its simplicity and states that the anatomic as well as the functional results are satisfactory

Jurnal Nevropatologii i Psikhiatrii, Moscow

No 1, 1 148, 1931

Idealistic Tendency in Present-Day Western European Psychiatry V A Vnukov —p 17
Anthropologic Studies Applied by Soviet National Democrats M B Krol —p 25
Psychohygienic Movement in Relation to U S S R Reconstruction L M Rozenshtein —p 35
Psychoneurologic Centers as Part of Medical Program K Monakhov —p 43
Problems in Psychohygiene and Psychiatry in International Exhibition at Dresden (1930) A O Edelshtein —p 47
Sclerometry and Tonometry in Study of Muscle Tonus I I Rusetskiy —p 53
Visual Conditional Reflex in Dogs with Extirpated Left Occipital Lobe P M Rozentsveig —p 59
Pathogenesis of Miliary Neurosis and Miliary Granuloma in Dementia Paralytica V K Beletskiy —p 68
Pathogenesis of Dementia Paralytica Pyrotherapy and Malaria Therapy V V Korneev —p 73
*Differential Diagnosis of Alcoholic Intoxication Gans Rodiet Symptom of Scleral Hemianesthesia A V Ilyin —p 78
Clinical Aspect and Pathologic Anatomy of Abscess of Brain D S Futer —p 83
Is Schizophrenia a Separate Nosologic Entity A A Perelman —p 87
Psychopathic Personality Influenced by Exogenous Factors B R Gurvich —p 97
Birnbaum's Pathoplastic Psychosis S P Ronchevskiy —p 104
Ergot Psychosis Case P Stolina —p 108
*Psychic Disturbance in Chorea Minor of Adolescents S I Kogan p 111
*Constitutional Predisposition to Chorea Minor E A Osipova —p 120

Diagnosis of Alcoholic Intoxication: Gans-Rodiet Symptom.—Ilyin states that his experimental studies with animals and his clinical observations substantiate his belief that hemianesthesia of the sclera, or the symptom of Gans-Rodiet, is present in various forms of clinical alcoholism and whenever alcoholic intoxication has an etiologic significance This symptom may be present together with symptoms indicating disturbance in the nictitating and supra-orbital reflexes, with anesthesia of a peripheral type, with ataxia in the hands and sluggishness of the facial expression The phenomenon is due to a disturbance in the motor reflexes of the mimetic muscles especially those innervated by the facial nerve and the first branch of the trifacial nerve

Psychic Disturbance in Chorea Minor of Adolescents.—Kogan gives four personal observations consisting of patients aged 16, 17, 18 and 23 with psychic symptoms in favor of a diagnosis of chorea minor The diversity of psychic symptoms in both schizophrenia and chorea minor may be explained by the contiguity of the regions in the brain responsible for each disease The author believes a virus may have been responsible in two of his cases, while the fact that there was an epidemic of rheumatism in the vicinity may explain the independent development of chorea minor in the other two patients as well as the simultaneous appearance of chorea minor in all four of the patients, who were older than those usually affected with chorea minor

Constitutional Predisposition to Chorea Minor.—Osipova states that the appearance of chorea minor is dependent not only on a toxico-infectious factor but also on an inherited predisposition to the disease Her studies proved that the various elements of the somatopsychic structure of the disease were similar to those present in the parents The somatic constitutional changes were characterized by general weakness, cardiovascular deficiency, and predisposition to various infections; the neuropsychic constitutional changes were characterized by instability of the sympathetic nervous system, weakness in the sensorimotor nervous system, and low psychic tonus Extensive catamnestic studies led the author to believe that constitutional predisposition to chorea is peculiar to asthenic types of individuals with a specific motorium and that chorea is a cerebral disease with changes in the motor as well as the sensory spheres.

No 3, 1-98, 1931

Control of Figures and Problems in Organized Neuropsychiatry for 1931 G Karanovich —p 3
Preparing Medical Psychoneurologic Centers L M Rozenshtein —p 12
Present Day Concepts of Occupational Therapy and Mental Disease V A Miznikov —p 30.
*Sprue Psychosis A Yu Viyasnovskiy —p 35
De Clerembault-Kandinsky Pseudohallucination Syndrome as Indication of Lost Personality A A Perelman —p 44
So Called Acute Leyden-Westphal Ataxia M G. Jislin —p 54
Nature of Acute Leyden Westphal Ataxia Sh A. Rossin —p 61
Combination of Symptomatic Epilepsy with Schizophrenic Process: Case S Kunyavskaya —p 70
*Anatomoclinical Study of Sleep Optic Thalamus and Aqueduct of Sylvius as Zones of Sleep Regulation V. E Mikheev.—p 75
Influence of Bilateral Extirpation of Occipital Lobes on Visual Conditioned Reflex. B M Rozentsvaig —p 83

Sprue Psychosis.—Viyasnovskiy discusses six cases and concludes that patients with sprue can develop psychoses at the onset as well as at the termination of the disease. Delirium and hallucinations predominate in the catamnesis and the psychic disturbance should be regarded seriously in the prognosis quoad vitam. The psychoses appear most often in individuals with a burdensome inheritance or with a constitutional weakness of the nervous system. In fatal issues, examination at necropsy shows pathologico-anatomic changes specific for sprue and also microscopic and macroscopic changes in the central nervous system The latter are of circulatory origin and are a result of instability of the hemato-encephalitic barrier.

Study of Sleep.—Mikheev presents the catamnesis in five patients with tumor of the brain and a tendency to sleepiness during the course of the disease. Sleepiness seemed to be concomitant with the appearance of ptosis and paralysis of the upper eyelids. The author's anatomopathologic studies led him to believe that the zones for regulation of sleep lie in the region of the optic thalamus and particularly the aqueduct of sylvius

Bibliotek for Læger, Copenhagen

124: 181 222 (June) 1932

*Circulatory Relations in Varicose Syndrome. H. Haxthausen —p 181
*Roentgen Diagnosis of Intestinal Invagination E Thomsen —p 202
Mode of Action of Insulin N A Nielsen —p 216.

Circulatory Relations in Varicose Syndrome.—Haxthausen says that measurement of the temperature of the skin in varicose lower extremities showed no noticeable decrease from the normal in the cutaneous blood supply. The hypothesis of stasis in varices as the cause of ulcer and eczema and the theory of nutrition of the skin with "used" venous blood cannot therefore be maintained Varices diminish the ability to counteract hydrostatic pressure by muscular movements and thus lead to the formation of filtration edemas and defective resorption of these. The patients and the regions where this condition is most marked are especially liable to cutaneous complications, and there is therefore reason to assume a causal relation between the two

Roentgen Diagnosis of Intestinal Invagination.—In Thomsen's first patient, a child aged 3, the roentgen picture supported the diagnosis of invagination Laparotomy revealed a ring of enlarged lymph nodes about the right flexure of the colon, to which the localized intestinal spasm during the roentgen examination is ascribed. The patient had enteritis with melena In the second, fatal case, in an infant aged 9 months, with rectal prolapse, the roentgen diagnosis was also misleading On operation an ileocecal invagination was found, complicated by fibrous bands encircling various portions of the intestine After disinvagination, three perforations were seen on the intussusceptum

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

Vol. 99, No. 12 CHICAGO, ILLINOIS SEPTEMBER 17, 1932

ADVANCES IN ANESTHESIA FROM THE STANDPOINT OF THE SURGEON

FRANK H. LAHEY, M.D.
BOSTON

It has been my lot to grow up in surgery during the period of the greatest development of anesthesia and of anesthetists. It has been my good fortune to have associated with the clinic, from its beginning, a full-time anesthetist, and to see the department of anesthesia increased until we now have four full-time anesthetists: two physicians and two nurses. This, together with my own natural interest in anesthesia, has provided me with considerable experience, which has in turn permitted me to arrive (at least for my own benefit) at quite definite conclusions.

In my early days in surgery, anesthesia was in a far from satisfactory state. The anesthetic was given by the youngest and least experienced of the hospital interns, who in most instances had had little or no training or instruction in the technic of administration. Responsibility for the anesthesia was claimed or accepted by the operating surgeon, who often impatiently demanded rapid induction, and who dictated the depth to which the patient was to be carried.

The anesthetizing of private patients was done by young surgeons who had recently graduated from surgical house-officerships but who had no operations to do. Giving anesthesia for operating surgeons in private hospitals was accepted as a stepping-stone to higher things in surgery. It kept one in contact with influential surgeons (patronage is not limited to Washington!), and it providentially furnished the income necessary to existence.

So long as anesthesia was limited almost entirely to the administration of ether, this was not a really bad system, supplying, as it did, young men fresh from hospital services with good general training, and assuring them continuation of their association with operative procedures. Its drawback was that these men had no deep and permanent interest in anesthesia: It was to them but a hurdle over which the course led to surgery, an experience to be gotten through with and relegated to the background as soon as possible; and while those who did it wanted to give as good anesthesias as they could, so that they would be asked again and so earn a living, they did not want to be known as too good in anesthesia, lest they become known as anesthetists, and thus be sidetracked from their main object in life—that of surgery.

Having personally progressed through the vicissitudes of anesthesia as just described, I became at times acutely aware of the defects of such a system, not only as related to the immediate management of certain trying problems of anesthesia but also as related to the development and advancement of anesthesia. I thought I foresaw that the future of better surgery would be intimately linked with the future of better anesthesia—which all now know to be the case.

The development of anesthetists has therefore interested me very much, and it is through it in recent years that we have seen the extraordinary developments in anesthesia. The plan of the past, under which the anesthetist's responsibility consisted almost solely in putting a patient to sleep and in keeping him there until the operation was over, did not attract the most desirable type of minds to this field. When, however, anesthetists were given actual responsibility and even authority, together with an opportunity to develop and expand their clinical judgment and experience—and when proper remuneration became available—real progress began to appear.

With the development of anesthetists and departments of anesthesia, the progress in anesthesia in recent years has been remarkable, and there has been nothing which has given me greater satisfaction. Nothing else has proved so valuable in the way of facilitating and assuring the safety of surgery.

It would be wrong for me to present a discussion of anesthesia and anesthetists, since it would be but a delivery of the views of our anesthetists, Dr. Sise and Dr. Woodbridge. What I can well discuss, however, is the attitude of heads of surgical departments toward anesthetists, some of my personal experiences with them and my reactions as an operating surgeon to some of the anesthetics. I can speak, of course, only from my own experiences in an organized clinic, in which the operations are done always in the same two hospitals with the same unchanging personnel, and with the same unchanging surgical teams. I realize that these conditions are often difficult for some anesthetists, and that modifications are necessary to meet such changed circumstances.

One of the fundamental requirements for good anesthesia and good anesthetists is, I believe, that the latter should have the opportunity and plenty of time to make careful examinations of patients well in advance of the day of the operation. The complete record of a patient's history, physical findings, laboratory data and contemplated surgical procedure should be available for their perusal, in order that they may form an estimate of the patient's condition and the magnitude of the procedure which he is expected to withstand.

The policy of sending patients into the hospital the night before operation and operating on them the next

---

From the Lahey Clinic.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

morning, unless they have been recently and particularly examined and estimated by the anesthetists in the clinic, is, we are convinced, a bad one.' If patients arrive at the hospital between 5 and 7 o'clock of the night before operation, as they not infrequently do, no matter when they are told to arrive, there will often be haste and omissions in preoperative examination. In order that this may not occur, we have for some years maintained the rule that patients who are to have major operations must be in the hospital two nights before operation. This permits leisurely examination and preparation. Any major surgical operation has a sufficient percentage of risk attached to it to justify requiring the patient to give sufficient time for careful approach to it.

We feel that the repeated clinical experiences which anesthetists have with definite operative procedures should be turned to advantage to the patient and the surgeon. We have therefore for some time, at the request of Dr. Woodbridge, arbitrarily grouped all risks into grades 1, 2, 3 and 4, grade 1 being a nearly perfect risk, grade 2 a slightly doubtful risk, grade 3 a dangerous risk and grade 4 a risk in which a fatality is probable. No grade 4 risks should be permitted to continue on the operative list, and the anesthetist and surgeon should carefully discuss the operative procedure, the anesthetic and the probable danger in all grade 3 patients. This plan surrounds the operative procedure with an additional safety measure. All experienced surgeons and anesthetists realize that not infrequently patients are lost by routine procedures and by neglect to observe indications of danger which are not strikingly obvious.

We believe that the anesthetist should see the patient postoperatively in order that he may acquire first-hand information from the patient himself as to his objective and subjective reaction to the anesthetic and operation. Furthermore, it is psychologically important both from the point of view of the patient and from that of the anesthetist that contact between them be reestablished after the operation. The anesthetist has played a real part in it, much more real than surgeons have hitherto acknowledged, and he deserves and appreciates a portion of the patient's friendship and gratitude, just as the surgeons do. All surgeons would do well to realize that, provided men of the right character have been selected, anything which increases the responsibility and elevates the position of anesthetists automatically advances anesthesia.

As the director of a clinic in which a considerable amount of surgery is done, I realize that there is a distinct tendency on my part to influence the anesthetists unduly, and to acquire certain fixed views concerning the relation of anesthesia to operation. For example, during the period when ether was employed almost exclusively for abdominal operations, I personally tended to demand considerable depth of anesthesia with its consequent relaxation and facilitation of exposure and approach to operative fields, a situation which was very properly resisted by the anesthetists, particularly in bad risks, because of the shock reactions. I feel that as regards spinal anesthesia, we surgeons have placed undue demands on our anesthetists, particularly in high spinal anesthesia for upper abdominal operations, because of the fact that this type of anesthesia provides such ideal operating conditions. It has not been easy, I know, for our anesthetists, who consider high spinal anesthesia in bad risks a dangerous procedure, to win us away from this type of anesthesia with its beautiful relaxation, quiet respirations and advantageous exposure, and to make us modify our technic to fit some less dangerous anesthesia, such as avertin and regional and intratracheal ethylene in gastric resections, splenectomies, common duct stone explorations and other upper abdominal operations on patients who are bad risks. Having become adjusted to this type of anesthesia, particularly since the intratracheal method and carbon dioxide absorption have been added to the procedure, and being convinced of the additional safety factor which it provides, particularly in long upper abdominal operations on patients who are poor risks, we have become aware that we must not impose our will on our anesthetists.

Surgeons must, in short, realize that the constantly widening field of anesthesia is playing a very large part in the advance of surgery, and they must listen with respect to the opinions of anesthetists as to the effects of various forms of anesthesia on the outcome of various operative procedures, with a willingness to modify the procedures to meet the dangers of anesthesia.

I am aware that in discussing the question of nurse anesthetists I am touching on a subject concerning which there has been considerable debate among anesthetists. Nevertheless, having, as I do, a conviction that the nurse anesthetist has a distinct place in the problem of anesthesia, I must voice my sentiments in favor of retaining her in the field of inhalation anesthesia. One cannot consider the question of improvements in anesthetists and anesthetics without considering their relation to the costs of surgical care. As I have said, if one is to obtain better anesthesia one must obtain better anesthetists, and this implies of necessity, and quite properly, better salaries for anesthetists. Good anesthetists are well worth good salaries, but it would unduly burden the cost of surgical procedures to employ physician anesthetists for all anesthesias. Nurse anesthetists, working under the guidance and direction of physician anesthetists, attain a considerable degree of technical skill in administering inhalation anesthetics, yet may properly command much lower salaries, and so play an extremely desirable part in reducing the costs of anesthesia and hence the costs of surgical care.

Finally—and I hesitate to raise this question, yet feel that I must, since I am in such an unassailable position from which to discuss it, having no personal ax to grind—the medical profession, realizing as it now does the advantages of expert anesthesia, must take a position against the employment of the consultant physician or family physician as the anesthetist. Since we, working in a clinic, are entirely free from partiality, it is my duty for the benefit of those men who are doing surgery, especially in rural communities, to do everything that I can to help them free themselves from this form of patronage, which today actually amounts not infrequently to a disguised form of fee splitting.

It has become an accepted arrangement, handed down from the ether era, that one of the perquisites of the physician referring a patient to a surgeon is that he is to give the anesthetic if he desires. This custom has been largely overcome in good-sized centers, but many surgeons in less populous ones are suffering from it. They wish to develop better anesthesia and anesthetists, but are fearful of eliminating the prevailing arrangement less they lose their surgical consultants. It will be eliminated only when we discuss it frankly, and when it is made clear to the medical public that such a system does not provide for the patient the best type of anesthesia, an essential feature for his recovery, does not give an opportunity for improvement in anesthesia, does not render to the patient the expert services which the consultant would want for himself or his family and does not permit the surgeon to develop a coordinating and cooperating organization. This is a development which every community needs, and must have if it is not to see an increasing number of its people seeking surgical services in other regions, where such coordination and cooperation exist.

The family physician is the backbone of medicine. He possesses, certainly in this country, a high standard of knowledge, judgment and honesty. I have now for some years given clinics in several of the postgraduate assemblies which occur yearly in all parts of the country. When I see men who have left their general practice to come and spend the better part of a week attending clinics and lectures which not infrequently run from early in the morning to late at night, I am impressed with their high character, and with the spirit which prompts them to take time from an often already overburdened existence in order to seek further knowledge. It is to those men who have naturally accepted the anesthesia perquisite as a legitimate procedure that we must patiently and kindly, but convincingly, demonstrate that it is not the best thing for the patient, for the operations or for anesthesia, and that such a plan hampers advancement in the field of anesthesia—a field which, I take pleasure and satisfaction in admitting, is playing a considerable part in widening and making safer the field of surgery.

RESPIRATORY AND CIRCULATORY CHANGES DURING SPINAL ANESTHESIA

M. H. SEEVERS, M.D.
AND
R. M. WATERS, M.D.
MADISON, WIS.

Respiratory paralysis is the usual cause of immediate death from spinal anesthesia. Three mechanisms, or combinations of these, may be involved:

1. Direct action on the medullary respiratory centers by diffusion of the drug to the fourth ventricle in paralytic concentrations. The observations of Koster and Kasman[1] and of Johnston and Henderson,[2] who demonstrated experimentally that excessively high concentrations are required to bring about this effect, indicate that this type can probably be excluded from serious consideration.

2. Ascending block of the intercostal and phrenic nerves. This type of paralysis is unquestionably preventable and is secondary either to (*a*) ignorance of, or inexperience in, the technical aspects of the procedure, or to (*b*) unsuccessful attempts to produce a selective sensory nerve block of the neck and upper thoracic regions.

3. Insufficient nutrient flow of blood through the central respiratory mechanism secondary to cardiovascular depression. Cardiovascular depression in some degree is attendant on every intradural block involving the upper part of the abdomen and the thorax. Since the integrity of the respiratory center depends on the maintenance of an adequate volume flow of sufficiently oxygenated blood, the obvious inference is that the latter mechanism is responsible for the majority of cases of respiratory failure. We shall attempt to demonstrate that the maintenance of an adequate volume flow of well oxygenated blood is difficult if nerve impulses are prevented from reaching a majority of the costal muscles by a high thoracic block.

A study of the factors concerned in the disturbance of circulation may furnish some evidence as to the possible means of prevention of respiratory failure.

Nearly all authors have stressed paralysis of the splanchnic nerves, with a subsequent pooling of blood in the abdominal region, as the principal, if not the only, factor involved in the circulatory depression. Experimental observations on the dog do not substantiate this view, as bilateral splanchnotomy does not produce the characteristic fall of blood pressure. Kremer and Wright[3] have recently observed that bilateral section of the splanchnic nerves of the cat produces a fall in mean blood pressure of only from 0 to 15 per cent. Furthermore, they found little or no change in venous pressure although the vascular bed in the spleen and intestine was markedly enlarged. The clinical findings of an avascular contracted bowel and blanched uterus indicate that all of the "lost" blood is not in the splanchnic region.

Skeletal muscle tone is essential for the maintenance of a stable capillary and venous bed. Loss of this tone accompanies any intradural block. Undoubtedly the splanchnic area is not the only region in which one can expect an enlarged capillary bed. Plethysmographic records made in this laboratory indicate a considerable increase in leg volume of dogs under spinal anesthesia.

It is of relatively little practical importance whether paralysis of the splanchnic nerves, the vasoconstrictor nerves to the skin and other vessels of the trunk and extremities or loss of skeletal muscle tone is the principal or contributory factor to the circulatory depression. All will admit that a marked decrease in the peripheral resistance to blood flow occurs in the region involved in the block.

Significant, however, is the fact that a sensory and motor block to the tenth dorsal segment, which produces an increased capillary bed over a considerable portion of the body, is usually attended only with a moderate alteration in blood pressure. (Rarely a marked drop in pressure may be due to a motor paralysis higher than is indicated by sensory examination.) Apparently vasoconstriction in other parts of the body or an increased cardiac output can occur as a compensatory measure. Furthermore, adequate oxygenation of blood and normal thoracic activity occurs, since there is no respiratory involvement.

Grave cardiovascular changes occur, as a rule, only in blocks that involve the chest. As the thorax is implicated, two important factors enter into consideration: (1) additional paralysis of the vasoconstrictor fibers and (2) intercostal nerve paralysis.

While the first factor has been elaborated by writers on the subject, little attention has been directed to the

---

From the Departments of Pharmacology and Anesthesia, the University of Wisconsin.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

[1] Koster, H., and Kasman, L. P.: Surg., Gynec. & Obst. **49:** 617 (Nov.) 1929.

[2] Johnston, J. F. A., and Henderson, V. E.: Anesth & Analg **11:** 78 (March-April) 1932.

[3] Kremer, M., and Wright, S.: Quart, J. Exper. Physiol. **21:** 319, 1932

consequence of partial or complete loss of costal respiration when superimposed on a vascular incompetence involving two thirds of the body. Clinicians see patients who suffer no outstanding ill effects from a diminution in minute volume respiration, particularly if this is of short duration. This may explain why the diminished respiratory exchange occurring during spinal anesthesia has been minimized. The conditions that exist during spinal anesthesia deviate markedly from the normal. The increased vascular bed secondary to the aforementioned factors means low blood pressure, diminished minute volume flow of blood and poor oxygenation of tissues. The integrity of the medullary centers and heart is dependent on an adequate supply of oxygen. The additional anoxemia accompanying partial or complete thoracic paralysis may spell disaster.

That the oxygen needs of the body are not adequately met, owing to a reduced volume flow of blood and a decreased gaseous exchange in the lungs proportional to the lowered thoracic excursion, is the contention that constitutes the main thesis of the present communication.

In 1912, Gray and Parsons[4] published a clinical study in which they stressed the intimate relationship existing between the fall in blood pressure and the costal paralysis. Their conclusion—"The main fall is due to the thoracic paralysis, which is not compensated for by overaction of the diaphragm, and consequently the aspiration action of the thorax is diminished"—being at variance with the view of some physiologists concerning the mechanical movement of venous blood by variations in intrathoracic pressure, has not been generally accepted. We believe that their observation was essentially correct. Whether or not we accept their conclusion as to the mechanism involved, the fact remains that a partial or total loss of costal respiration diminishes gaseous interchange.

Isenberger and Lundy[5] observed that artificial respiration accomplished by alternate inflation and deflation of the lungs, with positive and negative intrapulmonary pressure, would maintain a nearly normal blood pressure in dogs after complete paralysis of the spinal cord produced by large doses (2,500 mg.) of procaine hydrochloride intradurally. This observation indicates that the heart will remain competent in spite of the decreased peripheral resistance provided fairly normal thoracic activity and pulmonary interchange occur. This method offers a means of study of the relative importance of the respiratory and cardiovascular factors with which we are concerned under the conditions existing in high spinal block. Accordingly, we have employed a similar method, a brief outline of which follows.

METHOD

Large dogs were used as the experimental animals. They were anesthetized three hours before the experiment with sodium barbital, 250 mg. per kilogram intravenously. An initial mean blood pressure of from 140 to 170 mm. of mercury and good respiratory activity were assured by this method. A few controls with ethylene and others with local infiltration to accomplish the operative procedures indicated that barbital modifies the end-result but slightly, provided sufficient time (three hours) is allowed after the injection before beginning the experiment. Removal of one spinous process or partial laminectomy was performed to insure intradural block.

The animal was then placed in a small Drinker respirator. This apparatus offers an ideal mechanical means of simulating normal costal respiration besides serving as a body plethysmograph to record respiration. Unobstructed respiration was assured by either a tracheal cannula or a closed endotracheal catheter. Thirty-seven animals were utilized, the procedure being to induce a block with procaine hydrochloride or to section the cord at various levels and accomplish as many of the following observations as were compatible with the technic involved:

(*a*) Cardiovascular data: heart rate, pulse pressure, mean arterial pressure, right auricular and iliac venous pressure and leg volume.

(*b*) Respiration: rate, amplitude, type, minute volume exchange, intra-abdominal and intrapleural pressures, alveolar oxygen and carbon dioxide, blood oxygen and carbon dioxide and oxygen consumption.

(*c*) Treatment: artificial respiration, oxygen, carbon dioxide, position, pressure on body and various pressor and stimulant drugs.

As the limitations of the present paper will not permit detailed experimental data,[6] we have chosen to consider individually each of the foregoing factors, attempting to correlate the laboratory findings with data gathered from about fourteen hundred clinical cases from the anesthesia service of the Wisconsin General Hospital.

OBSERVATIONS

Cardiovascular Data.—The tendency of the heart rate to remain relatively slow in either low or high blocks is well known clinically. The dog usually exhibits a tendency to vagotonia, particularly if the block is high. The relatively slow heart seen clinically allows an increased diastolic filling and a relatively large stroke volume provided the integrity of cardiac muscle is not impaired by myocardial disease or anoxemia secondary to chronic anemia, extensive hemorrhage, etc. Clinically, a rapid heart during spinal anesthesia is a danger signal and usually follows a diminished blood volume secondary to hemorrhage. It is serious and demands an immediate replacement of the original circulating volume. This condition is readily produced in dogs by hemorrhage.

The fall in systolic pressure is directly proportional to the height of the block. A lowered diastolic pressure is the rule, since it is a measure of the peripheral resistance to blood flow. In laboratory and clinical cases involving the thorax untreated by pressor drugs, a small pulse pressure usually obtains. Although the diminished pulse pressure is a rough indication of a diminished cardiac output, it appears from both laboratory and clinical observations that this condition may exist without observable deleterious effects until the cardiac muscle begins to fail from lack of sufficient oxygenation. Burch and Harrison[7] have demonstrated that there is little reduction of cardiac output in dogs under spinal anesthesia until the mean arterial blood pressure falls to 40 or 50 per cent of its original value.

The conception prevails that in consequence of a pooling of blood in the splanchnic region, there exists an ineffective filling pressure on the right side of the heart. Study of the venous pressure of dogs obtained directly by introduction of a cannula through the right external jugular into the right auricle indicates that a rise in venous pressure usually occurs, which is proportional to the fall in mean arterial pressure (fig. 1). A rise in venous pressure in the iliac vein also occurs. If the total blood volume is diminished by hemorrhage, however, a fall in venous pressure in the right auricle is observed. The prevailing opinion of cardiologists is that the output of the heart per minute is largely dependent on the effective filling pressure and heart rate provided the integrity of cardiac muscle is unimpaired. Since under these conditions as great or a greater effective filling pressure exists, it becomes obvious that the weak point in the system is the heart itself.

---

[4] Gray, H. T., and Parsons, L.: Quart. J. Med. **5**: 339 (April) 1912.

[5] Isenberger, R. M., and Lundy, J.: Personal communication to the authors. Lundy, J.: Proc. Staff Meet., Mayo Clin. **7**: 225 (April 13) 1932.

[6] Seevers, M. H., and Waters, R. M.: California & West. Med. **35**: 169 (Sept.) 1931. (Preliminary report.)

[7] Burch, J. C., and Harrison, T. R.: The Effect of Spinal Anesthesia on the Cardiac Output, Arch. Surg. **21**: 330 (Aug.) 1930.

To be effective on cardiac output, this increased pressure in the right auricle must be transmitted from the right side of the heart through the capillaries of the lungs to the left side of the heart. Drinker and his collaborators[8] have shown that the capillaries of the lungs are subject to remarkable increases in capacity by passive distention. If the left side of the heart is failing as a result of anoxemia, it necessarily follows that there will be an increase in the capacity of the lungs for blood and a decrease in their capacity for air. If these assumptions are accepted, it becomes obvious that a considerable portion of the circulating blood may be congested in the pulmonary vessels.

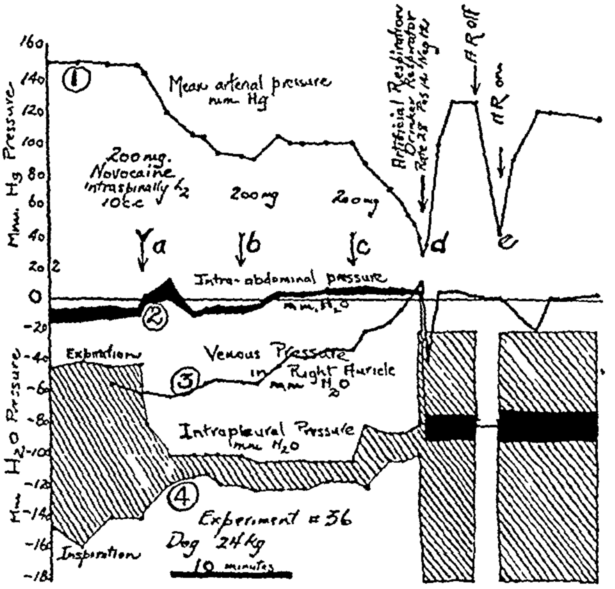


Fig. 1.—Curve *1,* mean arterial blood pressure (millimeters of mercury). Curve *2,* intra abdominal pressure (millimeters of water) Curve *3,* venous pressure in the right auricle (millimeters of water) Curve *4,* intrapleural pressure (millimeters of water) Respiratory fluctuation The upper line indicates expiration, the lower line, inspiration *a, b* and *c* indicate intraspinal injection (L_2) of 200 mg of procaine hydrochloride in 10 cc. of saline solution, *d* and *e,* artificial respiration with the Drinker respirator (positive, 14, negative, 12)

The conception held by some writers, that spinal anesthesia confers on the heart a period of physiologic rest, because the heart is relatively slow, appears to us to be as illogical as to assume that acute anemia or acute cardiac decompensation relieves the cardiac muscle of its normal load of work.

It is well known that a decreased venous pressure exists at the right side of the heart during shock of hematogenic origin.[9] It has been generally accepted that this observation is applicable to spinal anesthesia. The origin of shock in spinal anesthesia is initially entirely neurogenic. Many a clinician has compared in his mind the case of spinal anesthesia with a blood pressure so low as to be barely recordable, with the case of shock following hemorrhage, and wondered why the same type of resuscitory measures revived the former and failed in the latter. We must seek the answer in the knowledge that a diminution of total circulating blood volume with a loss of the integrity of the vessel walls as regards fluid and blood proteins occurs in hematogenic shock. It becomes apparent that this condition does not exist in the average case of spinal anesthesia. That prolonged spinal anesthesia may cause such a result, and that it may be superimposed on spinal anesthesia are well known. It is likewise well recognized that it is poor surgical judgment to superimpose spinal anesthesia on an existing shock following extensive hemorrhage. This was well demonstrated in the war experience of Marshall,[10] who observed that the mortality after spinal anesthesia occurred in the group of cases in which hemoglobin was below 100 with the Haldane hemoglobinometer.

Respiration.—Experimentally, the efficiency of respiration, thoracic excursion and minute volume exchange decreases in blocks involving the thoracic region. This decrease is proportional to the height of the block. In general, the same alterations are seen clinically. Compensation by increased diaphragmatic activity may occur in the low thoracic blocks. Although this overactivity of the diaphragm increases with high thoracic blocks, it is less effective in maintaining a good pulmonary ventilation. This overactivity of the diaphragm is hindered and rendered inconspicuous in the Trendelenburg position owing to the pressure of the abdominal viscera. That pulmonary ventilation is decreased is further evidenced by our studies of alveolar and blood oxygen and carbon dioxide, both in man and in dogs. A considerable decrease in alveolar, as well as in arterial and venous blood oxygen occurs, with a corresponding increase in carbon dioxide. Oxygen consumption in dogs rises and falls with the changes in arterial pressure. We interpret this as an indication of a diminished volume flow of blood rather than a diminished utilization of oxygen. Greene and Greene[11] emphasized that in experimentally produced anoxemia little change in utilization of oxygen occurs until the arterial saturation falls to a very low point, provided the blood pressure is unaltered. The saturation of arterial blood, however, varies directly as the circulating volume passing the pulmonary epithelium. Thus, a greater undersaturation of arterial and venous blood and a decrease in total oxygen consumption indicate a diminished volume flow of blood.

Further evidence of the decrease in pulmonary ventilation is furnished by studies of intrapleural pressure variations. The normal intrapleural variations in the barbitalized dog are from an inspiratory pressure of —12: —18 cm. of water to —4: —5 cm. of water during expiration (fig. 1). With a complete paralysis of costal respiration, these variations are reduced to —10: —12 during inspiration and —8: —10 during expiration.

The mean intra-abdominal pressure under these conditions normally varies from —2 to +3 cm. of water, with a respiratory fluctuation of from 0.5 to 1 cm. of water. We have always observed an increase in mean intra-abdominal pressure, as well as in respiratory fluctuation, following paralysis of costal respiration. The changes are probably largely due to increased diaphragmatic activity. These findings are contrary to the ideas of Gray and Parsons, who believed that a decreased intra-abdominal pressure existed secondary to flaccid paralysis of the abdominal musculature.

---

[8] Drinker, C K; Churchill, E D, and Ferry, R M Am J Physiol 77:590 (Aug) 1926

[9] Meek, W. J., and Eyster, J. A E Am J Physiol 56:1 (May) 1921.

[10] Marshall, G.: American Year-Book of Anesthesia and Analgesia, New York, 1917-1918, p 225

[11] Greene, C H, and Greene, C W Am J. Physiol 62:542 (Nov) 1922.

Treatment.—From the foregoing observations, we have gained the impression that the extremely close relationship existing between oxygenation of tissues and the maintenance of good cardiovascular function must be exceedingly important in spinal anesthesia. Experiments to study this relationship further were therefore performed, with the following results:

1. Artificial respiration alone, with the Drinker respirator, using alternate positive and negative pressures, will maintain the blood pressure near its original level after either a block completely paralyzing all respiratory activity or section of the cord at the corresponding level (fig. 2). These observations agree with those of Isenberger and Lundy. Either negative pressure or positive pressure alone, while sufficient to sustain life, is not so effective in maintaining a good arterial blood pressure. The same applies to chest compression or positive intrapulmonary pressure.

2. Exposure of the epithelium of the lungs to high concentrations of oxygen markedly augments the beneficial effects of artificial respiration.

3. Passive distention of the lungs with 100 per cent oxygen will maintain an adequate blood pressure in the absence of any respiratory movement for at least fifteen minutes (fig. 3). Apparently the only limitation to the procedure is the accumulation of carbon dioxide in tissues.

4. Inhalation of carbon dioxide in 5 and 10 per cent concentrations in oxygen always resulted in further lowering of the blood pressure in the animal with a low blood pressure accompanying thoracic paralysis. These inhalations were beneficial, however, in hastening a return of intercostal activity in the animal in which thoracic function was beginning to return at the termination of the block.

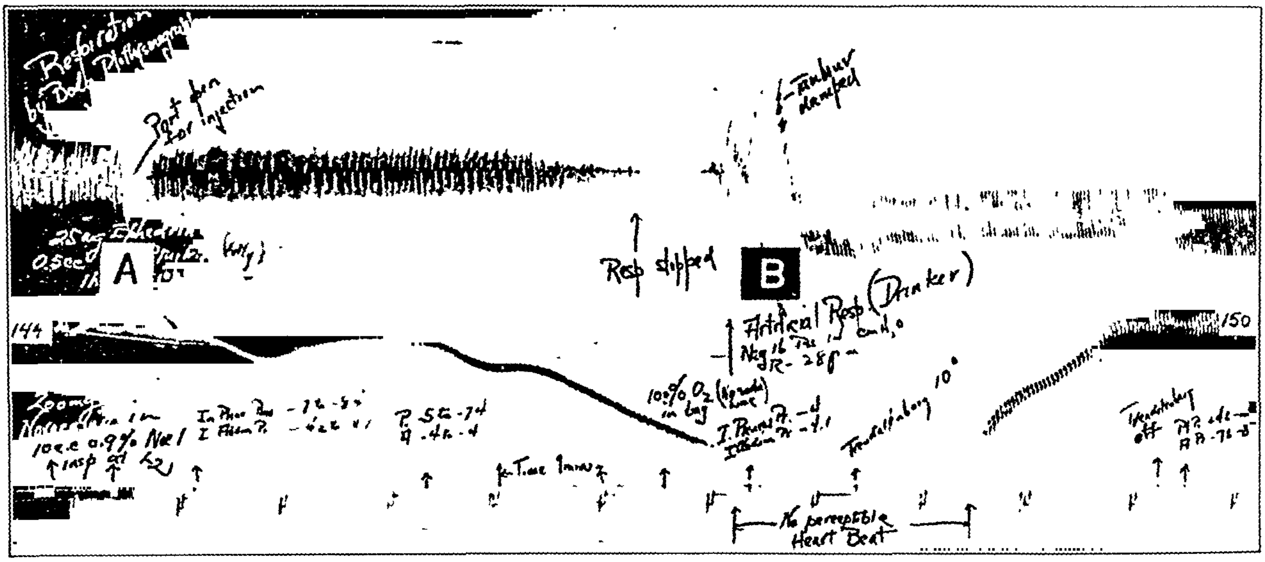


Fig. 2.—*A*, mean arterial blood pressure, 144 mm. of mercury. Intraspinal injection (L_2) of 200 mg. of procaine hydrochloride in 10 cc. of physiologic solution of sodium chloride. (Note the primary respiratory paralysis.) *B*, artificial respiration with the Drinker respirator. Breathing 100 per cent oxygen. No cardiac impulse to mercury manometer for two minutes. Ten degrees Trendelenburg for two minutes. Mean arterial blood pressure, 150 mm. of mercury five minutes after artificial respiration.

In view of these observations, there can be little doubt as to the validity of our original premise. Unquestionably the cardiovascular system will remain competent even though peripheral resistance to blood flow has been reduced to a minimum by paralysis of all vasomotor nerves and skeletal muscle, provided the volume of adequately oxygenated blood retained within the vascular boundaries is sufficient to keep up an effective circulation to the vital organs. This knowledge makes it easier to study therapeutic procedures rationally. Four methods of approach suggest themselves to combat the altered physiologic conditions. All have been clinically utilized. They are:

1. Increase of the easily available oxygen of the blood by exposure to high alveolar oxygen percentages or artificial respiration.

It seems reasonable that every patient under spinal anesthesia should be given the benefit of inhalations of oxygen. This conception is verified by clinical as well as laboratory observations. Patients are more comfortable, less nauseated, maintain a better blood pressure and have a better postoperative recovery following the exhibition of oxygen during the surgical procedure. This is particularly true if sedatives in sufficient quantities to produce any respiratory or circulatory depression have been administered prior to the block.

It is not generally recognized clinically that any significant increase in available oxygen can be assured by the inhalation of oxygen. Sollmann[12] gives the following figures: Arterial blood contains about 18.5 per cent of oxygen in chemical combination with hemoglobin and 0.6 per cent dissolved in plasma, a total of 19.1 per cent. Inhalation of undiluted oxygen increases the percentage of oxyhemoglobin only to 18.7 per cent; the dissolved oxygen is increased in proportion to the partial pressure, i. e., to 3 per cent, giving a total of 21.7 per cent, or an increase of 2.6 per cent. Since oxyhemoglobin does not readily yield all of its oxygen to tissues, Haldane[13] considered that this apparently small increase really equals about 40 per cent of the easily available oxygen of the blood. In consideration of the diminished minute volume flow of blood accompanying spinal anesthesia, it appears that this increase may be quite significant.

---

[12] Sollmann, T.: Manual of Pharmacology, ed. 3, Philadelphia, W. B. Saunders Company, 1926, p. 769.

[13] Haldane, J. S.: Respiration, New Haven, Conn., Yale University Press, 1922.

From our observations on dogs, the simultaneous administration of carbon dioxide in the cases of impending respiratory paralysis secondary to low blood pressure is of no benefit. On the contrary, a lowering of blood pressure occurs. Since the central stimulant action of carbon dioxide depends on a fair oxygenation of medullary centers and its effectiveness on intact vasoconstrictor pathways, these results might be expected in high blocks. Apparently, a concentration of carbon dioxide that will stimulate the depressed respiratory or vasoconstrictor centers cannot be reached without exerting a predominant paralytic effect on the peripheral blood vessels.

Should respiratory paralysis supervene, whether due to direct nerve block or secondary to cardiovascular incompetence, artificial respiration must be resorted to. The two phase type comprising forcible inspiration and expiration is preferable. Although this is best administered by mechanical devices, such as the Drinker respirator, it can be readily accomplished by a modification of the Schäfer method, pressure on the chest being used to effect expiration and compression by a second operator of a distended oxygen-filled bag fitted to a face mask to insure good inspiration. The latter procedure alone will suffice, as the lungs are distended with only slightly diluted oxygen. Overdistention of the bag is to be avoided, as compression of the pulmonary vessels prevents an adequate flow of blood to the left ventricle. It seems reasonable that a moderate distention, however, may be beneficial by relieving pulmonary congestion, thus making more blood available for systemic circulation. Obviously, a good airway is imperative. This can best be assured by pharyngeal or endotracheal intubation. The stomach may be easily inflated if positive pressure is applied to a bag attached to a face mask. This distention will contribute to the circulatory embarrassment and can be avoided by an endotracheal catheter.

It is likely that the Drinker respirator acts as a mechanical aid to circulation by pressure on the extremities, abdomen and chest (fig. 4). This constitutes the ideal method of treatment, since no intubation is necessary and no gastric inflation is possible.

2. The use of drugs to effect an increase in peripheral resistance or an increase in cardiac output.

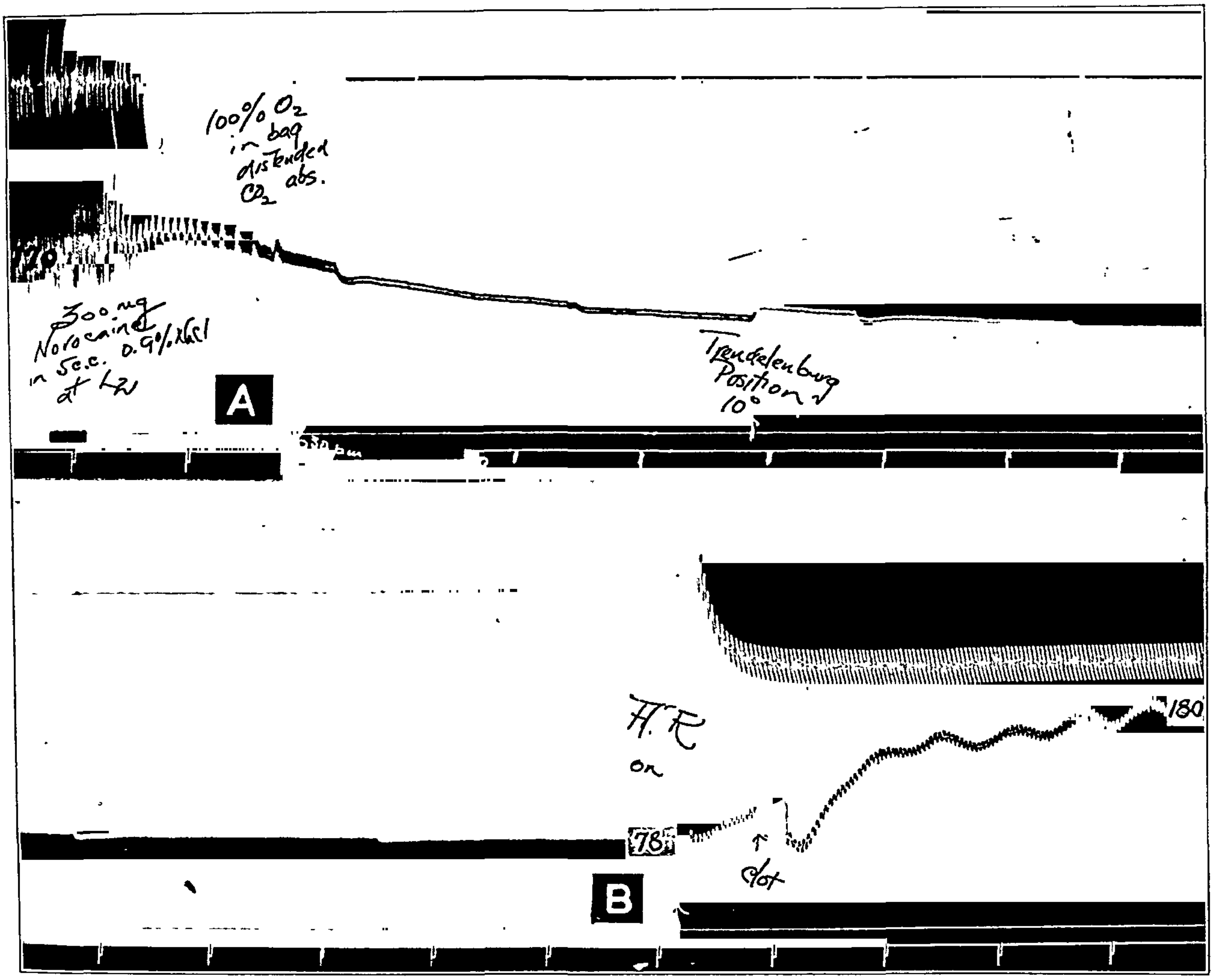


Fig. 3.—Upper tracing: *A*, mean arterial blood pressure, 170 mm. of mercury. Intraspinal injection (L_2) of 300 mg. of procaine hydrochloride in 5 cc. of saline solution. Immediate costal and phrenic nerve paralysis (upper line). The lungs expanded with 100 per cent oxygen. Lower tracing: *B*, mean arterial blood pressure, 78 mm. of mercury. There has been no respiratory movement for sixteen minutes. Artificial respiration with the Drinker respirator. Five minutes later, the mean arterial pressure was 180 mm. of mercury.

The drugs commonly employed at present are epinephrine and ephedrine. That the first is worthless for the prolonged maintenance of blood pressure is evidenced both in the laboratory and in the clinic. It may be of value, however, in cases of sudden circulatory collapse as a temporary expedient until the effects of some longer acting drug may be attained. The prolonged intravenous infusion of dilute solutions may also be effective.

Ephedrine has received an extended clinical trial in spinal anesthesia since first advocated by Ockerblad and Dillon,[14] given either prophylactically prior to the block or intravenously after the block. Evidence from both the clinic and the laboratory indicates that its continued use is warranted. These observations also lead to certain definite conclusions regarding its use.

The effectiveness of ephedrine appears to be due to its ability to (*a*) increase the peripheral resistance by constricting arterioles and (*b*) increase the minute volume output of the heart by direct action on the cardiac muscle.[15] It is well known pharmacologically that the efficacy of drug stimulation depends on the physiologic state of the cell to be stimulated. Ephedrine is no exception to this rule. The anoxemic heart and the blood vessel, the permeability of which to fluids and proteins is increased from oxygen deprivation, cannot be expected to respond. For this reason, ephedrine is a disappointment in shock of hematogenic origin. This is a common clinical observation. Chen[16] has demonstrated the relative impotence of ephedrine in combating this type of shock in dogs. Our laboratory observations confirm this finding. Cases of spinal anesthesia have been reported in which disastrous results have been laid to repeated relatively large doses of ephedrine. We have observed that the effectiveness of ephedrine in the dog following intradural block is in inverse relation to the degree and duration of low blood pressure and anoxemia.

The use of large doses of ephedrine to maintain a blood pressure higher than normal throughout the

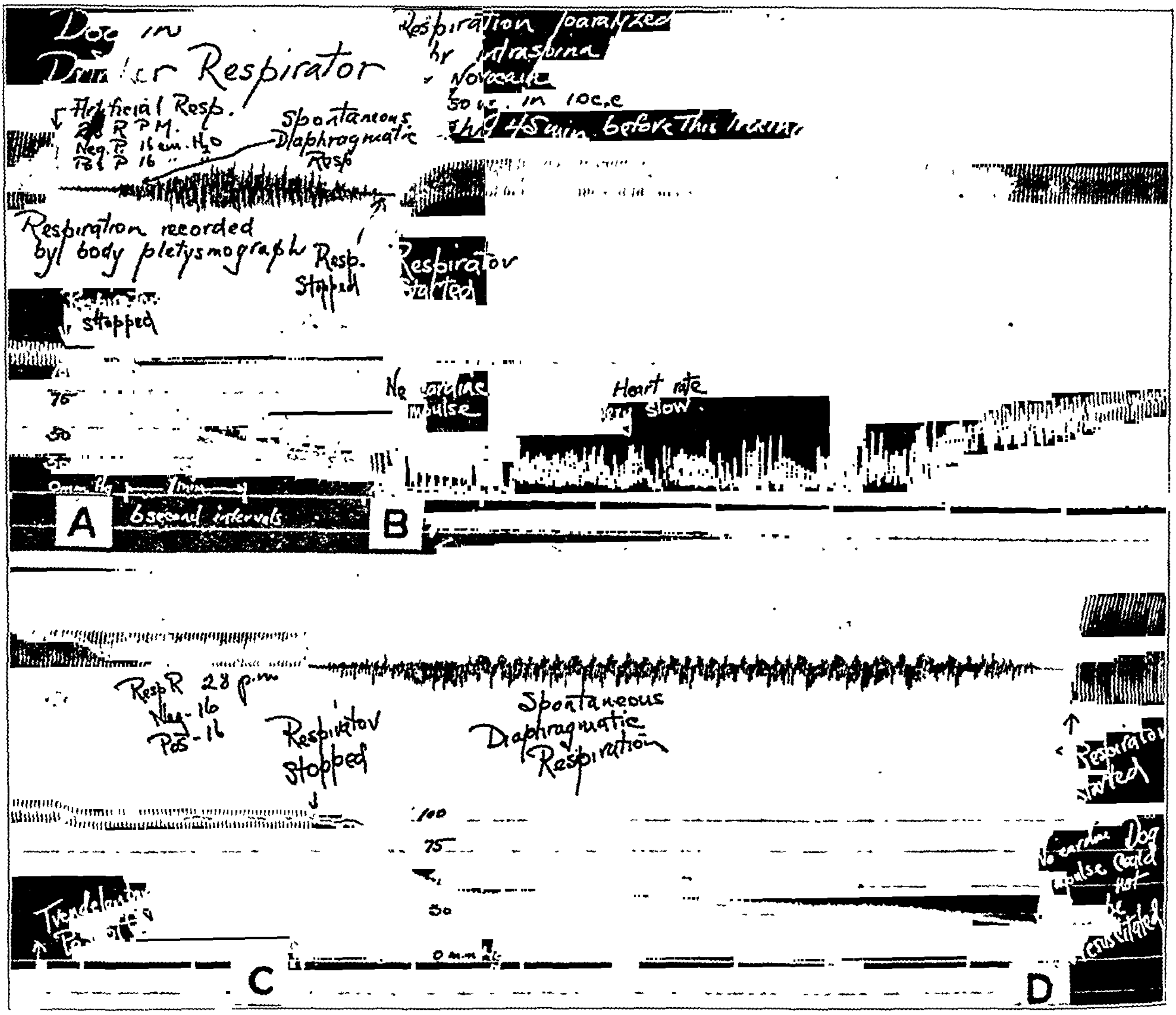


Fig. 4.—Upper tracing: The dog had been artificially respired for one hundred and sixty-five minutes following the intraspinal injection of 400 mg. of procaine hydrochloride in 10 cc. of 0.9 per cent saline solution. Blood pressure, 100 mm of mercury: *A*, respirator stopped. Note that spontaneous diaphragmatic respiration is not adequate. *B*, respirator started. Heart rate 15 per minute. Blood pressure 30 mm. of mercury. Lower tracing: Twenty minutes after upper record. *C*, respirator stopped. Note again that spontaneous respiration is inadequate. *D*, respirator started. Could not be resuscitated after six minutes, with blood pressure at 30 mm. of mercury.

---

[14] Ockerblad, N. F., and Dillon, T. G.: The Use of Ephedrine in Spinal Anesthesia, J. A. M. A. **88**: 1135 (April 9) 1927.

[15] Chen, K. K., and Schmidt, C. F.: Medicine **9**: 1 (Feb.) 1930.

[16] Chen, K. K.: J. Pharmacol. & Exper. Therap. **26**: 83 (Sept.) 1925.

operative procedure may mask for a period the symptoms of impending shock of hematogenic origin. When the overstimulation resultant from drug action subsides, circulatory collapse may occur, which, had it been recognized and treated early by fluid or blood replacement, might have been averted. Its marked cardiac action indicates discretion in its use when cardiac disease is known or expected. We have seen no evidence of circulatory or other damage from ephedrine in cases of uncomplicated spinal anesthesia if the dose is limited to that sufficient to restore normal blood pressure, provided the tissues are adequately oxygenated.

3. The use of position to favor gravitational circulation.

The efficacy of this procedure in the prevention of medullary paralysis has been demonstrated clinically. That it may have some disadvantages besides hindering surgical manipulation in the upper part of the abdomen has not been stressed. The weight of the abdominal viscera tends to compress the contents of the thorax, particularly in the exaggerated Trendelenburg position. Experimentally, there occurs an increase in venous pressure in the right side of the heart. There is no evidence from laboratory experimentation that the cardiac output is materially increased, although a slight rise in blood pressure occurs. The failing heart may allow an increased volume of blood in the pulmonary vessels and a diminished vital capacity. Hamilton and his co-workers[17] have recently reiterated the well known fact that a marked decrease in the vital capacity occurs even in the recumbent position. If these facts are accepted, we may postulate that certain portions of the lungs will remain in a state of relative atelectasis. This is particularly true if expansion of the lungs is further hindered by thoracic paralysis. In view of this reasoning, it seems possible that the Trendelenburg position may be a factor in the etiology of postoperative pulmonary complications.

*Pulmonary Complications in Fourteen Hundred Cases of Spinal Anesthesia in the State of Wisconsin General Hospital**

	Operations on Upper Part of Abdomen	Operations on Lower Part of Abdomen	Extra-Abdominal Operations
Cases	351	571	484
All respiratory complications (until time of discharge from hospital)	82 (23.3%)	113 (19.8%)	24 (5.0%)
Severe respiratory complications	22 (6.2%)	27 (4.7%)	11 (2.2%)
Deaths	14 (3.9%)	8 (1.4%)	9 (1.8%)

* Through Dr. Martha Kohl.

Sise,[18] of the Lahey Clinic, stated in his report of the incidence of postoperative pulmonary complications his belief that the type of operation and the preoperative condition of the patient are more important factors in the production of these complications than the type of anesthesia. He found, to his surprise, that the number of complications following spinal anesthesia was in the same order of magnitude as with ether anesthesia.

Statistics of pulmonary complications in fourteen hundred cases of spinal anesthesia in the State of Wisconsin General Hospital are available (table).

Unfortunately no statistics on general anesthesia are yet available under conditions existing in this hospital. Other authors, on the contrary, apparently have been more fortunate. This is due, perhaps, to a greater skill in technic, a better selection of risks or such an enthusiasm for the procedure that postoperative complications are looked for only at the autopsy table or are ascribed to causes other than spinal anesthesia.

4. Increase in the total volume of circulating blood. If one assumes that during the early stages of spinal anesthesia the permeability of the vessel wall is unaltered and the original blood volume remains intravascular, then measures that will increase the total volume might be expected to effect a beneficial influence on pressure.

Burch and Harrison[19] found that the injection of rather large amounts of physiologic solution of sodium chloride prior to intradural block in dogs was quite effective in preventing the marked fall in blood pressure.

If the method is to be of the most benefit, obviously it must be utilized while the vessels are still physiologically intact. This means either prior to, or throughout the course of the operation.

If spinal anesthesia happens to be the method of choice for operation on a patient who is a poor risk, we follow the practice of using a slow intravenous drip, which is started immediately after the block has been induced. Intravenous medication is then instantly available.

COMMENT

In view of experimental and clinical observations, we believe that too little stress has been placed on the rôle of respiration in the maintenance of cardiovascular integrity during spinal anesthesia. Our conception of the train of events occurring during untreated high spinal block is as follows: initial decrease in peripheral resistance to blood flow by vasomotor nerve and skeletal muscle paralysis; decrease in minute volume respiration accompanying intercostal nerve paralysis; inadequate oxygenation of blood; diminished minute volume blood flow; progressive loss of vascular tone over the whole body and acute cardiac incompetence, both the result of oxygen deprivation; failure of the medullary respiratory mechanism as the nutrient flow of blood becomes inadequate, the latter occurring while the heart is still capable of being revived by oxygenation.

We believe that the rational use of spinal anesthesia with maximum safety to the patient implies the following:

1. Proper selection of risks, the deciding factors for its use being the absolute need for complete muscular relaxation and the ability of that particular patient to oxygenate his tissues normally. This, of course, precludes the routine use of spinal anesthesia for all patients with abdominal conditions. With spinal anesthesia, as well as with any other anesthetic procedure, individualization must replace "rule of thumb" practice.

2. Limitation of the block to exclude major thoracic involvement. Enthusiasts[1] for the procedure have advocated spinal anesthesia for operations on the head and neck. Any method dependent for its factor of safety on a selective paralysis of sensory as opposed to motor nerves, especially when the motor components are the phrenic nerves, deserves little consideration. This is particularly true in view of the technical diffi-

---

[17] Hamilton, W. F.; Moore, J. W.; Kinsman, J. M., and Spurling, R. G.: Am. J. Physiol. 99: 534 (Feb.) 1932.

[18] Sise, L. F.: Anesth. & Analg. 11: 23 (Jan.-Feb.) 1932.

[19] Burch, J. C., and Harrison, T. R.: The Effect of the Administration of Fluid on the Fall in Blood Pressure Caused by Spinal Anesthesia, Arch. Surg. 22: 1045 (June) 1931.

culty inherent in the exhibition of a selective drug concentration to the nerve components concerned. This difficulty is apparent in the experience of the proponents of the method. A blood pressure so low as to require palpation of the abdominal aorta to determine whether the heart is still active is hardly compatible with what is ordinarily considered to constitute good anesthesia.

3. To combat cardiovascular collapse by the judicious use of the following: Inhalation of oxygen throughout the surgical procedure; the prophylactic or therapeutic use of ephedrine to maintain the original blood pressure (we believe that the patient who might be damaged by moderate doses of ephedrine is not a suitable risk for spinal anesthesia); the use of a moderate Trendelenburg position when indicated, and the proper administration of fluid while the blood vessels and heart still maintain their physiologic integrity. We do not intend to imply that in every case in which spinal anesthesia is used the patient needs or should have all this treatment.
4. Artificial respiration with undiluted oxygen in impending circulatory or respiratory failure.
5. Postoperative hyperventilation with carbon dioxide periodically throughout the first twenty-four hours to expand atelectatic portions of the lungs.

ADVANCES IN ANESTHESIA FROM THE STANDPOINT OF THE ANESTHETIST

JOHN S. LUNDY, M.D.
ROCHESTER, MINN.

One cannot consider advances in anesthesia from the standpoint of the anesthetist without making at least some reference to older anesthetic agents and to the methods of their administration. Chloroform and mixtures containing chloroform continue to fall more and more into disuse, although from time to time its employment is advocated by those who are skilled in its administration.[1] The use of ethyl chloride, other than as an agent for anesthetizing tissue by freezing, has been debated, especially from the standpoint of safety. There are satisfactory ways of inducing anesthesia without ethyl chloride.[2]

Ether, though still widely used by the open drop or semi-open drop method, is becoming less acceptable when so administered than when it is mixed with the gases. Ether given by rectum is being replaced by tribromethyl alcohol (avertin) or tribromethyl alcohol and amylene hydrate. This seems to be an advance. When anesthesia is produced by ether given rectally, it is less easily controlled than when it is given by inhalation. As more and more patients are anesthetized with tribromethyl alcohol, it is being shown that a dose large enough to produce anesthesia should seldom be used. Tribromethyl alcohol tends to be used more and more as a preliminary medicament, to be followed by a local anesthetic or by a general anesthetic given by inhalation in a reduced dose.

Nitrous oxide continues to be the most generally popular gas anesthetic agent, especially for extraction of teeth. This is due largely to the fact that it is not inflammable, and for that reason can be used with more safety than an inflammable gas. Ethylene is widely used and has been generally satisfactory. Its introduction in 1923 marked one of the most outstanding advances in anesthesia in recent years.[3] There have been a few accidents due to its inflammability, and no doubt there will be more unless the generally recognized precautions incident to its use are observed. There are phases of the technic of using this agent that I wish to call to your attention. In addition to maintaining a high humidity and using grounding devices for the gas machine and other furnishings in the operating room, it is well to begin anesthesia with nitrous oxide and oxygen and then to substitute ethylene for the nitrous oxide. At the termination of anesthesia all ethylene and ether are, or should be, flushed out of the machine with a mixture of nitrous oxide and oxygen, regardless of whether carbon dioxide has been used.

Carbon dioxide has been used to produce anesthesia, but its best application is not as an anesthetic but for the purpose of regulating the depth of respiration.[4] This has been a distinct advance in dental, surgical and medical cases. The use of carbon dioxide diluted with nitrous oxide, ethylene or oxygen frequently has helped to control nausea and vomiting in cases in which general or spinal anesthesia has been used. It has been used to advantage in the control of postoperative and nonoperative cases of hiccup, and in some cases its use has made possible the avoidance of straining during gas anesthesia, without the use of ether in addition to the anesthetic gases. When ether is used for admixture, carbon dioxide facilitates the absorption of ether and hastens the induction of satisfactory anesthesia.[5] I think that the postoperative administration of carbon dioxide and oxygen for hyperventilation is a distinct advance in lessening postoperative pulmonary complications.

Magill[6] has made a revolutionary change in methods by his advocacy of intratracheal anesthesia. Formerly, small, hard catheters were used, through which the anesthetic agent was insufflated. Recently, Magill has introduced the use of large, soft rubber tubes through which the patient may inhale or through which the anesthetist may insufflate not only the anesthetic, but also oxygen. Flagg[7] also has demonstrated the efficacy of the large caliber tube. The intratracheal method is particularly useful in intrathoracic surgery, in plastic and other operations on the head and in any operation in which difficult respiration or the posture of the patient makes the administration of a general anesthetic agent by the usual methods more difficult than when the tube is used.[8] Skilful insertion of the large, soft rubber tube eliminates much of the criticism of the method, and gives the anesthetist positive con-

---

From the Section on Anesthesia, the Mayo Clinic.

Read before the Section on Pharmacology and Therapeutics, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

[1] Anderson, R. M.: Unpublished thesis. Freeze, D. D.: Personal communication to the author. Hadfield, C. F.: Practical Anesthetics for the Student and General [illegible] York, William Wood & Company, 1931, pp. [illegible] W.: Personal communication to the author. R [illegible] H. N.: Anaesthesia and Anaesthetics, New [illegible] Company, 1930, pp. 109-119.

[2] Shields, H. J.: Ethyl Chloride and Its Place in Anesthesia, Canad. M. A. J. **24:** 250 (Feb.) 1931.

[3] Brown, W. E.: Preliminary Report on Experiments with Ethylene as a General Anaesthetic, Canad. M. A. J. **13:** 210 (March) 1923. Luckhardt, A. B., and Carter, J. B.: The Physiologic Effects of Ethylene, J. A. M. A. **80:** 765 (March 17) 1923.

[4] Henderson, Yandell: Respiration in Anesthesia: Control by Carbon Dioxide, Brit. M. J. **2:** 1170 (Dec. 19) 1925.

[5] Haggard, H. W.: The Absorption, Distribution and Elimination of Ethyl Ether, J. Biol. Chem. **59:** 737 (April) 1924.

[6] Magill, I. W.: Endotracheal Anesthesia, Proc. Roy. Soc. Med., Sect. Anesth. pt. 1, **22:** 83, 1928.

[7] Flagg, P. J.: Intratracheal Anesthesia, Arch. Otolaryng. **5:** 394 (May) 1927.

[8] Tovell, R. M.: Intratracheal Anesthesia, Anesth. & Analg. **10:** 97 (May) 1931.

trol of anesthesia and ventilation; obviously it is a distinct advance, especially when methods of inhalation are otherwise difficult. Magill's intratracheal tube has been used in certain cases in which obstructed respiration has complicated other conditions, such as convulsions and swelling or tumors of the throat and neck, or in medical cases in which artificial respiration must be carried on for several hours.

There has been great advance in the methods of administering local anesthetics, and this type of anesthesia continues to be used extensively, especially when patients constitute bad risks. Regional methods of anesthesia are useful if the technic of their application has been mastered; for example, sacral block for operations on the anus and for perineal operations on the rectum is usually the method of choice, as is field block for operation for bunions. Surface anesthetics in ointments, gels and solutions have a definite field in the relief from pain of open wounds and are innovations of merit. The application of a local surface anesthetic agent in the postoperative period, instead of a general analgesic such as morphine, gives, comparatively at least, as much increased benefit as can be derived, in operation, from the use of a local anesthetic rather than of a general anesthetic.

Spinal anesthesia has been and is widely used. It is most useful in cases in which relaxation is essential. It has been abused in some cases by giving the patient an overdose. The principal advance in respect to dosage has been the estimation of it not in terms of milligrams or grains, but in terms of so many cubic centimeters of a solution of a certain concentration. Prepared solutions of local anesthetics are more convenient to use than other preparations. They are relatively safe for operations below the umbilicus,[9] but they are not so safe for operations in the upper part of the abdomen. Many papers have been written about the clinical application of spinal anesthesia, but less is actually known of the underlying physiologic effects, especially among patients who constitute bad risks, than is known of any other method of anesthesia. Ephedrine, by its elevating effect in blood pressure, no doubt has increased the use of spinal anesthesia; in most instances, ephedrine will counteract the fall in blood pressure that is caused by procaine hydrochloride.[10]

Whatever advance is presented by spinal anesthesia comes about through the use of relatively safe anesthetic agents, and no safer one has yet been introduced than procaine hydrochloride. Recently, local anesthetics of more prolonged action than procaine have been introduced, but as yet no agent with less toxicity has been presented or developed. If an agent can be developed which is a local as well as a surface anesthetic and no more toxic than procaine hydrochloride, it will be a real advance. Pitressin has been suggested as a substitute for epinephrine in local anesthesia.[11] If untoward systemic effects can thus be eliminated and the local hemostatic effect retained, this will also be an important advance.

Medication preliminary to operation has been widely used and abused. Whereas a mild effect is desirable, a profound effect is undesirable. This usually applies to morphine, the barbiturates and tribromethyl alcohol. Preliminary medication should be begun from three to twelve hours before operation, with the idea of eliminating fear and apprehension, and ordinarily not for the purpose of producing analgesia. In surgical cases, drugs of relatively short action that produce sedation are better than hypnotics of longer action. A recent advance in this field is the development of pentobarbital sodium, which, like other barbiturates, is antispasmodic, and for this reason, as well as for purposes of sedation, is advantageously given before the administration of local anesthetics. Tribromethyl alcohol has given considerable satisfaction in the hands of many, but the tendency at first was to give it as an anesthetic, later to give it as a basic anesthetic, and finally, still further reduction of the dose tended to place it in the category with the combination of barbiturates and morphine, by its use more as preliminary medication than as an anesthetic agent.

One improved method in procedures of anesthesia has been designated by the term "balanced anesthesia" wherein one uses small doses of preliminary medicaments and general or local anesthetics.[12] This procedure is particularly valuable to the patient who constitutes a bad risk, and from the standpoint of such patients it marks a decided advance in anesthesia.

In surgery and obstetrics there is little excuse for the adoption of any method as a routine. From the standpoint of the anesthetist, the principal advance in anesthesia has been that many agents and methods are available, and that a safe and satisfactory method or agent can be chosen for almost any type of patient or operation.

Medical cases sometimes offer a field in which an anesthetist may contribute to correct diagnosis or better care of the patient. For example, in tetanus, the intravenous use of the barbiturates, alternating with morphine and magnesium sulphate, has given relief to patients whose symptoms would otherwise have been resistant to control. The contribution has been not to the cure of the disease so much as to the control of symptoms.[13] In asthma, the use of oil-ether by colon has at times apparently been a life-saving measure, when the asthmatic condition has become otherwise uncontrollable.[14] In almost any condition in which convulsions are difficult to control, the barbiturates have been found to be useful; for example, in strychnine poisoning, eclamptic convulsions of pregnancy and meningitis. In certain cases in which pain is most difficult to control, the enduring effects of the barbiturates in large doses have controlled otherwise intolerable pain. Examples are industrial accidents, fatal burns or crushing injuries. The control of pain in war is being studied, and the barbiturates offer a method toward that end. Whereas previously the anesthetist limited himself to the administration of general anesthetics, the present-day anesthetist must be familiar with local anesthetics, hypnotics and analgesics, and must be prepared to supervise treatment by oxygen and other vapors, intravenous treatment or any other method of treatment in which he may be of help to his associates. In cases in which the differential diagnosis is essentially related to the determination of paths of transmission of pain, the diagnosis may be aided by the blocking of nerve trunks to certain regions.[15] In certain nonoperative conditions the anesthetist seems to be the one most fitted to make injections of alcohol for its prolonged effect in control of pain.[16] A recently developed anesthesia study record, including as it does a careful postanesthetic and postoperative check on complications, will in time give facts on which to base definite opinions. Previous records, for the most part, give a basis for impressions only.

---

[9] Rankin, F. W., and McCuskey, C. F.: Spinal Anesthesia in Surgical Procedures on the Colon, Anest. & Analg. **9**: 44 (Jan.) 1930.

[10] Ockerblad, N. F., and Dillon, T. G.: The Use of Ephedrine in Spinal Anesthesia, J. A. M. A. **88**: 1135 (April 9) 1927.

[11] Wermer, P.: Ueber die Anwendung von Hypophysenhinterlappenextrakten in der Lokalanästhesie, Wien. klin. Wchnschr. **43**: 187 (Feb. 6) 1930.

[12] Lundy, J. S.: Balanced Anesthesia, Minnesota Med. **9**: 399 (July) 1926; Progress in Balanced Anesthesia, Journal-Lancet **51**: 743 (Dec. 15) 1931.

[13] Lundy, J. S.: The Barbiturates as Anesthetics, Hypnotics and Antispasmodics: Their Use in 1,000 Surgical and Nonsurgical Cases in Man and in Operations on Animals, Anesth. & Analg. **8**: 360 (Nov.) 1929.

[14] Maytum, C. K.: Bronchial Asthma: Relief of Prolonged Attack by the Colonic Administration of Ether, M. Clin. North America **15**: 201 (July) 1931.

In recent years the anesthetist has been given new tools and new substances to use, and he has received valuable support from others, both within and without the medical profession.

Pharmacologists, physiologists and chemists have investigated in their laboratories, and have published results concerning various anesthetics and their effects, and these have been outstanding contributions from the standpoint of the anesthetist. General debility makes the choice of the anesthetic more important than it would otherwise be. In general, from the standpoint of the anesthetist, the greatest advance is the tendency to add the science of anesthesia to the art of anesthesia. As Jevons said "Science teaches us to know, and an art, to do."[17] By the science of anesthesia, then, I mean knowledge of the facts, principles and developing laws of anesthesia as they relate to the known facts of chemistry, pharmacology, physiology and other fundamental medical sciences. The art of anesthesia is the skilful application of this knowledge in practice. For example, the choice of the best anesthetic agent for a given case rests on a foundation of science, the administration of the agent chosen, largely on skill or art. Increased knowledge and experience, together with skill in the use of anesthetics and allied drugs has made the anesthetist more useful to his associates the surgeon, the obstetrician, the internist and the diagnostician, and so he becomes of increasing value to institutions that wish to develop an organization in anesthesia and associated fields. The attitude of many surgeons in encouraging anesthetists has been a great aid to progress in the field.

One of the most striking advances in respect to anesthesia with gas is the refined equipment made by manufacturers of gas machines. They have kept pace with the changing demands as new anesthetic agents and time introduced new technics. They have cooperated with anesthetists in carrying out their ideas. The first of modern gas machines was made in 1923 by Foregger with a separate control each for nitrous oxide, ethylene oxygen, carbon dioxide and ether.[18] Further contribution in a mechanical way has been the development by Waters[19] of the use of the soda-lime absorber in connection with gas anesthesia. This has reduced the cost of the administration of gases or other anesthetics by inhalation to the lowest practical level.

In nonsurgical cases there are the advantages of the new Drinker machine for artificial respiration and patients with surgical conditions now have available to them a new type of apparatus on which I have been working for ten years.[20] This apparatus can be used in connection with the intratracheal tube, and sometimes an inflatable vest can be employed.

The manufacturing chemist, although he, like the rest of us, is in business to make a living, should also, like the rest of us, be given his share of credit for the development of new substances that allay or abolish pain, and for establishing and maintaining a high standard of quality of his products. It seems to me that particularly worthy of praise are those manufacturers who having developed a new product which they have every reason to believe is beneficial and innocuous, delay putting the product on the market until experienced physicians, in actual practice, have been able, by means which are safe for patients, to confirm the findings of the manufacturers.

Opportunities for anesthetists are greater now than before. From the standpoint of economics the field of anesthesia is less crowded by members of this association than most other fields and, although more physicians than formerly have been studying anesthesia, this field offers many opportunities, especially for younger men. I think that it would be to the advantage of this association and its members to encourage especially some of the men who have just finished internships to devote their time to this subject. There are opportunities now for such study; previously no courses were offered. Publications dealing with anesthesia and related subjects have augmented the educational opportunities of this specialty. There are now three journals on anesthesia, one published in Germany, one in England and one in the United States. Societies of anesthetists are meeting regularly, and in a short time anesthesiology will be a regular specialty. I hope that this organization will soon recognize it.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR LAHEY, DRS SEEVERS AND WATERS AND DR LUNDY

Dr J T Halsey, New Orleans: In the discussion by Drs Seevers and Waters of the effects of paralysis of the intercostal muscles on the circulation during spinal anesthesia, it seemed to me that perhaps the authors did not emphasize sufficiently the bad effects on the circulation of the failure of the normal respiratory sucking and pressing in the chest which is responsible to so great a degree for keeping up the supply of blood to the heart. I thought that I could read in some of the charts a justification for my conviction that the interference with this mechanical factor is a grave thing. It seemed to me that these charts made it clearly evident that artificial respiration by the means of the Drinker apparatus was much more efficacious in restoring and maintaining the blood pressure than was the mere supplying of an extra concentration of oxygen to the patient. The mechanical difficulties connected with the application of that kind of artificial respiration to a surgical patient in the amphitheater are great, I am sure. I was consequently interested in what I took to be an intimation from Dr Lundy that he is on the way to getting something in the nature of a Drinker apparatus that can be applied only to the chest and so can serve as a really efficient physiologic method of improving the circulatory function in these patients. I should like to emphasize the importance of adopting all means possible to avoid the very rare but usually disastrous ethylene explosions. If I understand the views of Drs Seevers and Waters and what, it seems to me, they have proved about the state of affairs of the circulation in these high spinal anesthesias, a dilatation of vessels occurs in the splanchnic area, which those authors, in common with others, do not consider very important; there is a dilatation of the vessels and a change in regard to the physical conditions in the voluntary muscles through the body which make difficulties for the proper circulation of the blood, and the anoxemia leads to an impaired cardiac output. As a result of what I think is known about the action of ephedrine on cardiac output in some other conditions, I believe we ought to reserve our judgment and be cautious as to how we use it in these patients. Physicians should not feel that ephedrine is so surely a life saver that they can permit themselves to be careless.

---

[15] Flothow, P G: Diagnostic and Therapeutic Injections of the Sympathetic Nerves, Proc Staff Meet Mayo Clinic 6: 706 (Nov 25) 1931.

[16] White, J C: Angina Pectoris: Treatment by Paravertebral Alcohol Injection or Operation Based on the Newer Concepts of Cardiac Innervation, Am J Surg 9: 98 (July) 1930. Woodbridge, P D: Therapeutic Nerve Block with Procaine and Alcohol, Am J Surg 9: 278 (Aug) 1930.

[17] Webster's New International Dictionary of the English Language, Springfield, Mass, G and C Merriam Company, 1931.

[18] Lundy, J S: Ethylene: Its Value in Relation to Other Anesthetic Agents, Northwest Med 23: 126 (March) 1924.

[19] Waters, R M: Clinical Scope and Utility of Carbon Dioxid Filtration in Inhalation Anesthesia, Anesth & Analg 3: 20 (Feb) 1924.

[20] Lundy, J S: Adequate and Properly Controlled Artificial Respiration for Surgical Patients by Means of a New Pulmonary Ventilator, Proc Staff Meet, Mayo Clin 7: 235 (April 13) 1932.

DR. E. STARR JUDD, Rochester, Minn.: When I was on the Council on Scientific Assembly, it was constantly put up to us that anesthetists should be given a special section where they could work out their own problems. I opposed this, and I rather think Dr. Lahey opposed it, because we felt that anesthesia is a vital problem to so many different sections that the matters should be presented one year in one section, another year in another section. From my own experience, I think that although there are complications following the use of ether, and that ether is not entirely satisfactory, it is the safest anesthetic at the present time. Shortly after the war, a Parisian expert in administration of spinal and regional anesthesia was invited to the clinic, and we became greatly interested. We had some highly satisfactory experiences, and it looked for a time as though we were going to adopt spinal anesthesia pretty generally. However, after we had made a study of it, we concluded that, in our hands, spinal anesthesia and regional anesthesia were not as safe as ether. Then Dr. Lundy came to us, and since then we have been working constantly to try to find something that will improve spinal anesthesia, for nothing gives such satisfactory relaxation. I think I have saved some lives by using spinal anesthesia in very difficult reconstructions of the common bile duct. I have been enabled to do a much more accurate operation. So I like spinal anesthesia very much and I wish I could use it as much as I formerly thought I could. We had a woman patient with arthritis, cholecystitis and stones. Her general condition was not good, and we used spinal anesthesia. She had a smooth anesthesia, and an uneventful afternoon and night. The next morning, the blood pressure kept dropping. We supported her, but she did not improve, and died in two or three days. Necropsy revealed no cause of death. I don't know whether the spinal anesthetic was a factor, but I have always thought that if we had given the woman gas and ether she might have lived. In a period of ten years I had another similar experience. Finally, I gave up spinal anesthesia for abdominal work, much as I disliked to do so. It is the late effects, not the immediate effects, that have made us give up spinal anesthesia for abdominal surgery. If we can find either some drug or some instrument that will allow the same relaxation and ease of operation as we could obtain with spinal anesthesia, we shall have accomplished a great deal.

DR. A. M. CAINE, New Orleans: We are not troubled in this city with the anesthetic problem of the referring physician, but we are faced with the hospital technician whose one excuse for existence, from the hospital point of view, is that money may be made for the institution. The money thus made by the institutions employing technicians, thoughtlessly employed by the surgeon, seems to be a favorite theme at meetings of superintendents of hospitals. The practice is a hindrance to advancement in anesthesia, driving our best young men from engaging in the specialty. In his remarks on evaluation, Dr. Lahey has emphasized a most important point. Personal examination and follow up are most desirable; in fact, they are essential, for enthusiasm on the part of the anesthetist. We as anesthetists want to thank our friends who do so many patient hours of research work to prove or disprove a theory. They are our right hand in research.

DR. H. M. TRUSLER, Indianapolis: As a surgeon I am unwilling to tolerate any routine practice of anesthesia. I am especially unwilling to adopt the routine use of any agent that subjects the patient to the hazard of circulatory collapse or anoxemia. Certainly I regard spinal anesthesia as unsafe for routine use. It is difficult to obtain reliable statistics of anesthesia deaths, but it is probably true that the death rate due immediately to spinal anesthesia is close to 1 per cent. High spinal anesthesia I regard as especially dangerous because of paralysis of the thoracic muscles. It has always seemed to me that this factor greatly increases the hazard of circulatory collapse. From the standpoint of greatest safety under all conditions, if I were forced to rely on just one anesthetic agent, it would have to be ether. Since this is true I prefer to offset the objectionable features of ether by attempting to carry out what Dr. Lundy calls balanced anesthesia, using a combination of drugs in a way which I think will react best for the patient. In this effort I have especially enjoyed the use of the barbituric acid derivatives, and especially sodium amytal. When this drug is used in the proper fashion to produce a partial narcosis, I have found it a most valuable adjunct to anesthesia.

DR. M. H. SEEVERS, Madison, Wis.: In answer to Dr. Halsey, the reason I didn't mention more concerning the sucking and pressing action of the Drinker machine was the realization of the fact that the effect of the normal respiratory variations in intrathoracic pressure on blood movement is still controversial. Dr. Eyster recently has presented a paper indicating that under ordinary conditions the aspiring action of the thorax is of less importance than has been generally considered. We do not know what occurs under the abnormal situation existing in spinal anesthesia. The positive and negative pressures exerted over the whole body with the Drinker machine probably aid in the mechanical movement of blood. As far as the use of ephedrine is concerned, I think it has been fairly well demonstrated that small doses increase cardiac output. Chen and Meek were able to demonstrate this increase. If the dosage is large, the output is diminished. Our own results, both in the laboratory and in the clinic, have been obtained with doses that will maintain the original blood pressure. Our results have been good provided the tissues are adequately oxygenated. Ephedrine depresses the conduction bundle, and if the heart is anoxic, as the result of diminished circulation of blood, it may act only as a cardiac depressant.

DR. JOHN S. LUNDY, Rochester, Minn.: With regard to the increased output of the heart with ephedrine, in our experiments, in which the blood pressure was reduced tremendously and then elevated with ephedrine given intravenously, there was a marked increase in the pulse pressure for a period of about thirty minutes. This effect in increased pulse pressure could be terminated immediately by section of the vagi or could be stopped by the administration of a large dose of atropine. I simply wish to add this observation since the question has been raised about the output of the heart in connection with the use of ephedrine. With reference to Dr. Judd's remarks concerning delayed untoward results of spinal anesthesia, I am afraid he may be right. I can produce under certain circumstances, without exception, permanent cord changes from the use of solutions of procaine hydrochloride given intraspinally, and the picture that is seen through the microscope checks closely with that of the paralysis which is seen in observing an experimental animal; the animal dies invariably from four to ten days afterward. The point is not proved, I appreciate that, but it will be recalled that for many years the controversy raged—were there or were there not delayed untoward results from the use of chloroform? Finally it was decided that there were. I am afraid we are going to go through the same cycle with regard to spinal anesthetics.

Origin of the Name Syphilis.—Fracastorius was not only a physician, poet, mathematician, physicist, and astronomer, but also a geologist who saw fossil remains as the bodies of prehistoric plants. He died in 1553 of apoplexy. In 1559 a statue was erected in his memory at Verona with a eulogy of the author of "that divine Poem Syphilis." This poem, written, as he says, in his lighter moments, brought him more fame than all of his scientific writings. It appeared first in 1530 and was dedicated to the illustrious Cardinal Bembo, his old friend and classmate at Padua. The following selection from the third book relates the legend of the shepherd Syphilis, who, for an act of impiety, was struck with the French disease. This poem became so famous that the word syphilis soon became the universal term for this disease and displaced all other designations. —Major, R. H.: Classic Descriptions of Disease, Springfield, Ill., Charles C. Thomas, 1932, page 37.

INDUSTRIAL DERMATOSES

WITH SPECIAL REFERENCE TO ALLERGY AND MYCOTIC DERMATITIS

EARL D. OSBORNE, M.D.
AND
EDWIN D PUTNAM, M D.
BUFFALO

Within the past few years research work and clinical investigation have entirely changed certain aspects of industrial dermatoses We refer particularly to the work of Jadassohn,[1] Bloch[2] and his co-workers, Sulzberger and Wise,[3] and Sulzberger[4] in the demonstration of the fundamental importance of allergy in the production of dermatitis or eczema, particularly by the employment of the patch test and the passive transfer method of Prausnitz and Kustner in their investigations. Alderson[5] has called attention to the dilemma in which the Industrial Accident Commission of California was placed in considering a case of sensitization to turpentine and paint. The questions asked of Alderson and his committee by the Industrial Accident Commission illustrate the necessity for a clarification of our ideas on this subject. This refers to general physicians, industrial physicians and, particularly, to dermatologists who may be called in consultation The second aspect of industrial dermatoses to which we wish to call attention is that of mycotic dermatitis.

ALLERGY AS RELATED TO INDUSTRIAL DERMATITIS

There should be a clear understanding of just what is meant by the term "allergy." We believe that Bloch's definition is the best at the present time, namely:

> Allergy is that state which has as its basis the property of certain groups of cells (organs) of the living organism to react in a specific manner when brought in contact with a substance, which is, as far as is known, foreign to the organ or cells the characteristic of this specific pathologic process lies in the fact that it is caused by the reaction of this exogenous substance with its specific cellular fixed anti-body The basis and the essence of allergy is the ability of the living cell to react with the production of specific anti-bodies to the stimulus of foreign substances which are therefore called antigens

The term idiosyncrasy so frequently heard is one which in the light of recent experimental work loses much of its former meaning. Idiosyncrasy used medically means a peculiarity of constitution, and a person who reacts to poison ivy is said to be idiosyncratic In view of the fact that it has been shown experimentally that 80 per cent of all persons are allergic to Ascaris,[2] 60 per cent to poison ivy,[6] and 45 per cent to orthoform,[7] and that by using a concentrated extract of primula Bloch[2] was able to produce an allergic state in the skin of 100 per cent of persons, the question arises, Where does idiosyncrasy end? If 60 per cent of people react to poison ivy, certainly it cannot be said that they exhibit a peculiarity of constitution and that the 40 per cent of persons are normal. It is our firm opinion that the term idiosyncrasy signifies little and leads to confusion. We also agree with Highman[8] that the designation "allergic dermatitis" should not be used. The person, and not the dermatitis, is allergic.

For the sake of brevity we list the following facts, which have been shown by experimental and clinical investigation to be of importance in the consideration of industrial dermatitis due to allergy:

1. Allergy can be brought about by substances of a nonprotein as well as of a protein nature.
2. The location of the allergy may be in a circumscribed area of the skin, such as the dorsa of the hands or forearms, or it may be present in the entire cutaneous surface or in all the organs and tissues in the human body. In industrial cases it is well to remember that the allergic area may be localized to certain parts, particularly to the hands and forearms.
3. The eczema tests of Jadassohn and Bloch, or, as they are called in this country, "patch tests," are superior to all others in the demonstration of a cutaneous allergy.
4. Stauffer[9] has shown that substances with a high hydrogen ion concentration produce a greater reaction than those with a neutral reaction. This observation may be of great future importance.
5. Bloch and Steiner-Wourlisch[10] demonstrated in their experimental work in producing sensitization to primrose extract in guinea-pigs that there was a so-called "incubation period" of from seven to ten days between the first application of the primrose extract and the appearance of an allergic reaction when tested. Percival,[11] in his work on paraphenylendiamine called this the "latent period." We believe "latent" to be a better term than "incubation."
6 Bloch and also Stauffer have been unable to demonstrate antibodies in the blood serum of patients with eczematous eruptions due to allergy by the method of Prausnitz and Kustner. Bloch emphasizes this fact as differentiating eczematous manifestations of allergy from hay fever, asthma, urticaria and eruptions due to drugs. He suggests the possibility that the antibodies are fixed in the cutaneous cells and do not become free in the blood stream. This point is of extreme importance in the consideration of therapy and further research, and may explain the refractoriness to desensitization of dermatitis due to allergy. Yet, Ramirez and Eller,[12] in 1930, reported three cases of dermatitis due to ragweed, four to silk, one to cat hair, four to horse hair and one to paraphenylendiamine in which they successfully produced a passive transfer. They did not state whether the reaction of the passive transfer test was of an urticarial or an eczematous nature, but, suffice it to say that, so far as we can discover and according to Bloch, no cases of positive passive transfer of an eczematous nature occur in patients with a dermatitis due to exogenous substances
7 Although specific antibodies have not been demonstrated in the blood serum of a patient suffering from a dermatitis due to allergy, it has been demonstrated many times that this allergy is specific for the particu-

---

Read before the Section on Dermatology and Syphilology at the Eighty Third Annual Session of the American Medical Association, New Orleans, May 12, 1932

[1] Jadassohn, J Theoretisches und praktisches zur Ekezemlehre, Ztschr f arztl Fortbild **26:** 145 (March 1) 1929

[2] Bloch, Bruno (*a*) The Role of Idiosyncrasy and Allergy in Dermatology, *Arch Dermat & Syph* **19:** 175 (Feb) 1929, (*b*) Occupational Skin Diseases from Biological Point of View, J State Med **35:** 373 (July) 1930

[3] Sulzberger, Marion E, and Wise, Fred The Contact or Patch Test in Dermatology Its Uses, Advantages and Limitations, Arch Dermat & Syph **23:** 519 (March) 1931

[4] Sulzberger, Marion B Allergy in Noninfectious Diseases, M J & Rec. **131:** 392-394 (April 16) 1930

[5] Alderson, H E Compensable Disability in Occupational Dermatoses, Arch Dermat & Syph **24:** 401 (Sept) 1931

[6] Spain, Coca and MacNair, quoted by Bloch[2a]

[7] Schwarzschild, quoted by Bloch[2a]

[8] Highman, W J Allergy in Skin Diseases, Arch Dermat & Syph **20:** 151 (Aug) 1929

[9] Stauffer, H Die Ekzemprobleme, Arch f Dermat. u Syph **162:** 517 (Jan 24) 1931

[10] Bloch, B, and Steiner-Wourlisch, A · Die Sensibilisierung des *Meerschweinchens gegen Primel, Arch* f. Dermat u *Syph* **162:** 349 (Dec 18) 1930.

[11] Percival, G H Experimental Observations on Dermatitis Due to Dyed Fur, Lancet **2:** 417 (Aug 22) 1931.

[12] Ramirez, M A, and Eller, J J.· Intradermal, Scratch, Indirect and Contact Tests in Dermatology, J. A M A **95:** 1080 (Oct 11) 1930

lar substance or chemical, and that other substances or chemicals unrelated to the particular one causing the dermatitis will not produce a like reaction unless the individual is also specifically allergic to those substances or chemicals. This fact is of the utmost importance in industrial dermatoses. A dermatitis due to sensitivity to turpentine developed in a workman while working in a paint shop. He was forced to seek employment elsewhere when he recovered from the original dermatitis. He found work as a carpenter, and in a few days a new attack of dermatitis exactly similar to the original one developed. This second attack of dermatitis was said to be due to the fact that the first attack of dermatitis sensitized the skin to many different irritants. As a matter of fact, investigation showed that while the man was working as a carpenter he handled wood products on which turpentine had been used, and that he reacted violently to a patch test of turpentine.

In our study of industrial dermatoses due to allergy, we have reviewed two hundred and sixteen cases seen during the past five years, which corresponds to the period during which we have been performing patch tests as a routine in every case possible. For brevity we have grouped these cases, in order to bring out the particular points that we wish to stress.

GROUP I (One Hundred and Four Cases).—In the spring of 1931, a large rayon plant suddenly decided to change the composition of an oil used in the winding department from a nonsulphonated oil to a new sulphonated oil. About two hundred workers were employed on these winding machines, and their hands were constantly bathed in the oil. Nothing happened for three days, when a young woman reported a mild dermatitis of the face, neck, hands and arms. These cases rapidly multiplied during the succeeding ten days, until at the end of two weeks this dermatitis had developed in one hundred and four workers. Careful investigation of these cases showed the following facts:

1. All workers were exposed simultaneously.
2. The latent period varied from three to fourteen days, when the experiment ceased.
3. As new cases were appearing every day, it appeared probable that a much larger number of workers would have become sensitized to the oil.
4. Patch tests were strongly positive in all persons showing the dermatitis.
5. Two workers presenting normal skins were tested daily up to the time the dermatitis developed. The patch test became positive simultaneously with the appearance of the dermatitis on the exposed parts.
6. Three of these workers tested with ultraviolet light showed a markedly increased sensitivity.
7. Since this company has resumed the use of the oil formerly used, there have been no further cases of the aforementioned type.

GROUP II (Fifteen Cases).—In the summer of 1931, within a period of four weeks, in 15 linemen working for the Niagara Hudson Corporation on the high tension lines dermatitis of the hands and wrists developed, which varied from a mild erythema to severe bullous dermatitis with extension to the face and neck. Through the courtesy of Dr. H. J. Constantine of the Niagara Hudson Corporation, we were able to study five of these cases carefully, as well as to make tests in a number of linemen who did not develop the dermatitis. It was found that the cause was a new brand of rubber gloves which the linemen always wore while working on the high voltage lines. Investigation of these cases showed the following points of interest:

1. The dermatitis did not develop until after the new gloves had been worn for several days. The gloves were worn for a varying period each day, that is, from one hour to all day, in other words, there was a definite latent period.
2. Patch tests, with both old and new gloves, on linemen in whom dermatitis had not developed were negative. Patch tests with rubber removed from the new rubber gloves were uniformly positive in all five patients with the dermatitis.
3. Through cooperation by the company producing the gloves, it was finally demonstrated that the sensitivity was due to tetramethyl-thiuram-disulphide.
4. By changing the brand of rubber gloves, only a single lineman continued to have trouble. He had evidently become so sensitized that he reacted to the smaller quantity of the sulphur compound present in gloves which he had formerly used with immunity.

GROUP III (Eleven Cases).—These patients were florists; 10 of them were found to be sensitive to chrysanthemums or pompoms, both of which they had handled many times previously. The other case was found to be due to sensitivity to tulips. This patient had handled tulips for many years before showing signs of dermatitis.

GROUP IV (Twenty-Six Cases).—In 1927, a large aniline company suffered a severe explosion in one of its buildings devoted to the production of key materials such as nitrosophenol. Approximately 110 pipe fitters were employed to rush repairs to this building. Nothing happened for four days, and then one pipe fitter after another appeared with a severe dermatitis of the face, neck, hands and arms, which investigation showed to be due to contact with the chemical dust that had collected for years on the many pipes in the building. In these cases a definite period of latency was demonstrated.

GROUP V (Eight Cases).—These patients worked in a chrome-plating establishment. A change was made in the apparatus used, and the men were exposed to cyanide fumes. There was no trouble for three days, when five men complained of a mild dermatitis on the face, neck, hands and arms. In this instance again a definite period of latency was demonstrated.

GROUP VI (miscellaneous group: Thirty-Nine Cases).—In this group there were patients from many different industrial plants in and around Buffalo. There were four patients showing a positive patch test to paranitrosodimethylaniline, a chemical used as an accelerator in the curing of rubber, two patients from a rubber company with positive patch tests for sulphur powder, four patients from a chemical plant who gave positive reactions to nitrosophenol, and three other patients from the same plant, with positive tests for dinitrochlorbenzol. Other cases consisted of sensitivity to "flytox," varnoline, mineral spirits, kerosene, benzene, turpentine, acetone, xylene, crude coal tar, potassium cyanide, formaldehyde, thymolac, laundry chemicals, cleaning chemicals, soap, podophyllin, flour dust, duco and procaine hydrochloride. The remaining patients in this group were not tested, owing to a lack of cooperation either on the part of the company employing the patient or on the part of the patient himself.

At this point it is well to mention the fact that it is not always the fault of the physician that the cause of the dermatitis is left undiscovered. All too frequently the executives of the plant are unwilling to allow a careful investigation by the dermatologist to discover the exact cause of the dermatitis. Frequently the employee is taken back to work after the dermatitis has subsided and within a short space of time is discharged, because the company feels that there is too great a risk of paying further compensation by keeping the man around the plant. This is not generally true in our experience with the large companies. With the newer knowledge heretofore mentioned, it is distinctly up to the industrial physician and the consulting dermatologist to educate the executives of industrial plants regarding the great importance, not only to the company, but to the employees, of ascertaining the exact cause of the dermatitis. We can recall, in our experience, a considerable number of workmen who have drawn compensation for months and even years after having left the employ of the original plant in which the dermatitis first developed.

The technic of the patch test has been well described by others and need not be gone into here. The work of Stauffer[9] in Bloch's clinic is classic. In forty-eight of forty-nine industrial cases he was able to find the exact cause. We have been unable to match this percentage, owing at times to our own carelessness but usually to a lack of cooperation on the part of the industry or the patient. Industrial commissions and insurance companies should be acquainted with the advisability of determining the exact cause of any industrial dermatitis by means of the patch test.

The questions of compensation and permanency of disablement always enter into consideration. The cases divide themselves into the following groups so far as compensation is concerned:

1. Cases of mild dermatitis in which the cause is readily discovered, result either in no loss of time or a loss of time less than the law requires as a minimum for compensation. In New York State this is seven days. Such cases occasion no trouble.

2. Cases of a severe grade of dermatitis in which the cause is discovered and preventive methods are successful. These cases also present no difficulty from the angle of compensation.

3. Cases of moderate or severe dermatitis in which the cause is not found and the patient is discharged soon after he resumes work. These cases are too numerous and are usually a reflection on the sincerity of the industrial company.

4. Cases of severe or moderate dermatitis occurring in employees who may have worked for many years in responsible positions. Allergy has developed suddenly for which nothing can be done, in spite of the fact that the employee is a valuable man to the company. Usually such men are eventually forced to resign or are discharged, and must seek work elsewhere at greatly reduced salaries. These are sad cases and always occasion a sharp contest in the industrial court. In our opinion, such workmen are entitled to a certain amount of permanent disability compensation. From the facts cited heretofore in the literature and from our own experience as detailed in such persons, sensitivity develops from repeated contact with the particular antigens in question. If we were to answer the questions submitted to Alderson[5] and his committee regarding a case coming under this category, we would be forced to answer the questions as follows:

1. The first attack of dermatitis was caused by repeated previous exposures to the particular antigen.

2. There is a great deal of evidence to show that over 50 per cent of persons will react to a given antigen if repeatedly exposed to it.

3. Susceptibility to allergy is increased by repeated exposure.

4. Our impression is that in young persons with relatively thin horny layers allergy develops more rapidly than in an older person, other conditions being equal.

5. Susceptibility to allery is increased at a greater rate by repeated exposure than by age.

6. There is no positive experimental evidence that repeated attacks of dermatitis increase the susceptibility to allergy.

Regarding the cure of patients with allergic dermatitis, we have been unable to effect a cure in any case by any means at our disposal, including the intracutaneous and subcutaneous injections of gradually ascending doses of the particular chemical in question. We have observed a gradual lessening in sensitivity from lapse of time alone in a few cases that we were able to follow. We believe that the absence of free antibodies in the blood serum is the explanation of the refractoriness of these patients to treatment by desensitization.

MYCOTIC DERMATITIS IN INDUSTRY

So much has been written in recent years on eczematoid ringworm, fungus dermatitis, epidermophytosis or mycotic dermatitis, whichever term happens to be used, that physicians in general and industrial commissions are becoming well aware of this form of eczema or dermatitis. It has seemed to us that the diagnosis of a mycotic dermatitis has at times been made without sufficient evidence. As has been pointed out repeatedly by such men as Pusey[13] and Bloch, there is no difference pathologically between a mycotic dermatitis and a dermatitis due to some external irritant. Furthermore, it is frequently impossible to distinguish these two types of dermatitis clinically. We believe that before a diagnosis of mycotic dermatitis is made, the following points should be considered:

(1) A history of preexisting dermatitis in areas characteristically involved by superficial invading fungi, such as the toes, the groin and the interdigital spaces of the fingers. Referring to the latter, we have been misled several times by the appearance of vesicles in the interdigital space between the first and second fingers of the left hand of dentists. A diagnosis of dermatitis due to procaine hydrochloride should seldom be made unless proved by a patch test.

(2) Clinical evidence of preexisting chronic foci of fungus infections. Too frequently, the toes, groins and perianal regions are left unexamined when a persistent dermatitis on the hands is being considered. Repeatedly we have found an active vesicular ringworm infection of the feet in patients with a supposed industrial dermatitis of the hands.

(3) Smears and cultures, when positive, are of marked assistance. In approximately one half of the cases of known mycotic infection, such examinations are negative. We believe that a careful clinical history and examination are generally of more value than smears and cultures. A period of observation of from two to four weeks is extremely valuable in many instances in making a definite diagnosis of mycotic infection.

(4) We have frequently found that it is necessary to rule out the question of a dermatitis due to allergy by

---

[13] Pusey, W. A.: The Principles and Practice of Dermatology, New York, D. Appleton and Company, 1924.

various patch tests before arriving at a diagnosis of mycotic dermatitis. In going through our records, we found that thirty-two patients of a total of one hundred and seventy-five showing evidence of mycotic infection presented, in addition, a dermatitis due to allergy to some particular chemical. Frequently, an industrial dermatitis superimposed on a chronic mycotic infection of focal areas produced a marked flare-up in the mycotic dermatitis. The following case is an excellent example:

A worker in an aniline company suffered a severe attack of dermatitis due to allergy to dinitrochlorbenzene. He recovered from this dermatitis in about three weeks, chronic areas involving the palms, groins and feet persisting. This dermatitis caused him to receive compensation for about eight months, during which time and for periods of several weeks, he was many miles distant from the plant. Examination of him at this time revealed a characteristic mycotic infection of the areas previously mentioned, with positive smears and cultures. The dermatitis was properly treated, and in a few weeks he returned to work. A severe exacerbation of the dermatitis on the hands, including the palms, dorsal surfaces and forearms, developed. Patch tests showed him to be extremely sensitive to dinitrochlorbenzene.

(5) Every industrial physician and dermatologist should investigate each case of so-called eczema of the hands occurring in an industrial plant with which he is connected. We have had a number of interesting experiences along this line. In one instance, it was found that six cases of ringworm of the hands in chemists, all handling the same reagent bottles, developed from contact with another chemist with a chronic recurring eczema of the hands.

Because of its increasing prevalence, the question of whether a given case of mycotic infection is compensatable is receiving more and more attention in our industrial courts. We have found that the most exacting examination and history as previously outlined is necessary in order to answer the questions propounded in the industrial courts. We believe that mycotic dermatitis is compensatable:

1. When the source of infection can be proved to be a contact in the same plant, as in the case of the chemists previously mentioned.
2. When an industrial dermatitis or injury predisposes to the exacerbation and spread of a chronic mycotic infection. This comes under the category of aggravation, a subject that is so common in industrial courts at the present time. The compensation should end when the primary acute dermatitis has subsided and only the chronic foci remain.

We believe that a chronic, recurring mycotic dermatitis, aggravated by heat and moisture, should not be compensatable, because these factors are common to all industry. Seventy-five per cent of the cases of mycotic dermatitis in industry fall in this category, and usually a claim for compensation is made by the person so affected. It behooves every industrial physician and dermatologist to investigate such cases thoroughly and to establish a diagnosis beyond doubt. We emphasize again that, from clinical inspection alone, it is sometimes impossible to differentiate a mycotic infection from an industrial dermatitis due to chemicals. In times of economic depression and resulting unemployment, the presence of a mycotic dermatitis of the hands is a ready excuse for claiming compensation. With the widespread prevalence of this infection among the general population, it is not at all strange that many cases should appear among workingmen.

COMMENT

In this paper we have attempted to cover the two most important phases of industrial dermatoses, namely, dermatitis due to allergy and mycotic infection. Ninety per cent of industrial dermatoses fall in these two categories. The advance in our knowledge in the past few years has been sufficient to change greatly our concept of these two phases of industrial dermatitis. There have been many controversial problems that can be definitely settled.

The era of immediate or snapshot diagnosis in any case of industrial dermatitis has definitely passed. To examine a patient properly and to diagnose a case requires a great deal of time, patience and a certain amount of inquisitiveness and detective ability, as well as the proper laboratory facilities. Large collections of substances used in industry must be kept on hand for patch testing. Proper laboratory facilities must be available for mycotic studies. In our opinion, the time and energy spent in determining the exact cause of a given case is well worth while. In fact, from the standpoint of the dermatologist, nothing is more satisfying than the solving of a group of difficult cases of industrial dermatitis.

Lastly, the economic side of industrial dermatitis due to allergy and mycotic infection is of vast importance. It is apparent to any one familiar with industrial court cases that large sums of money could be saved by industry if a prompt diagnosis, backed by a scientific proof, were made, and the proper preventive measures were instituted. In the long run, it is the employee who benefits the most. No honest workman desires to live on compensation and be deprived of his full earning capacity, not to mention the weeks and months of suffering due to dermatitis. If a change in occupation is found necessary, the sooner it is accomplished the better for all concerned.

ABSTRACT OF DISCUSSION

Dr. C. Guy Lane, Boston: I subscribe to the authors' statement with regard to the localization of sensitization in the cutaneous cells. I remember well the first case of procaine hydrochloride dermatitis I saw in which the skin tests were positive on the patient's arms and negative on the body, lips and mucous membranes. Later tests on the arms at the sites of the previous tests gave stronger reactions than the early tests. I also agree that the patch tests are the best method available at present. I was interested to hear of the positive skin tests at the time of the onset of the dermatitis. The latent period, I think, is of extreme importance, for one has to go a little further back in the histories to get the pertinent facts in individual cases. In regard to specific sensitization, it has been my belief for some time that one attack of dermatitis has lowered the skin resistance to other types of irritation. Perhaps I shall be a little less sure of this after hearing the amount of evidence the authors have brought up regarding specific sensitization. At the same time, I am reminded of the work of Gardiner, in Edinburgh, who reviewed his cases of industrial dermatitis and found two predisposing factors which were important: first, the history of a preceding dermatitis, and, second, a recent intercurrent illness seemed definite predisposing factors in his group. I have not felt that these factors were as large in the group I have seen, but I have felt that they have played a part. I am glad that the advisability of disability in connection with skin cases was emphasized. I think many industrial firms and some insurance companies fail to recognize that disability can be produced in the skin in the same way that it can be in eye and bone injuries sustained in industry. I also believe that repeated attacks of an industrial dermatosis definitely increase the sensitization of the in vidual and therefore increase the total disability. I have f that "dermatophytosis" is a little better term than "myc dermatitis" because these cases, if they are proved cases, will need to be classified as infectious skin disease rather than as a dermatitis or eczema. The cases that I have seen with regard to compensation because of a fungous infection I have attempted to classify in five groups: (1) primary cases, which are unusual in industry; (2) cases in which industry contributes to the exaggeration of a fungous infection and increases the disability; (3) cases which start as true industrial dermatoses and then are complicated with a fungous infection; (4) cases in which the patients are sensitized by a fungous infection, though I am not absolutely sure this group exists, and (5) cases in which there is no relationship

Dr. Harry E. Alderson, San Francisco: This paper covers some phases of a subject that is becoming increasingly important, with the growth of health and accident insurance and the rapid spread of a disease that might be called "compensationitis." A high percentage of alleged occupational dermatoses may be mycotic infections or other dermatoses, not necessarily industrial. The certainty that many cases originate at home or away from the job, or that they are at least aggravated by outside factors, complicates the situation It would pay executives to have home investigations made in many cases I have been skeptical about turpentine sensitization, believing that it existed but that many reported examples were not truly allergic. This applies also to many other nonprotein substances that in themselves are essentially irritating or cauterizing in their action Since publishing my paper, I have heard of many cases. My report was more or less in the nature of a challenge and a call for help, and I am pleased with the response One must be on guard, however, in using patch tests with substances that are in themselves usually irritating, particularly when the suspected material is covered with an impermeable substance such as rubber It even applies when solutions are merely sprayed or rubbed into the skin The relationship of mycotic infections to industry is important, and here knowledge of the patient's home environment and habits is of particular value Irritating substances to which one with a nonindustrial mycotic dermatosis is exposed will often render the condition acute and more or less disabling Naturally, such cases for the time being are industrial I have had many such cases. Two women with chronic, dry, mycotic infection of several finger nails were referred to me by the California State Compensation Insurance Fund. Their nail troubles were of several years' standing Their work exposed their hands to sugar solutions for several hours daily. One patient presented also an acute paronychia around several nails My ruling that only the latter case was to be regarded as occupational and treated until the acute disabling inflammation subsided was accepted by the company. My recommendation that the other case be rejected was likewise accepted In my opinion there is no branch of practice that calls for greater training, experience and skill than is required of dermatologists in handling these cases. Perhaps some day the insurance carriers will realize this fact Some of them already have found that it really pays them to call in a specialist early.

Dr. Harry Foerster, Milwaukee The recognition of the existence of a latent period in the development of a dermatitis is important in compensation cases. A dermatitis venenata or an infectious eczematoid dermatitis may develop following the healing of an injury. The question that arises is, What relation does one bear to the other? The intact horny layer being a natural defense against chemical irritants and infections, a break in this defense as a result of a minor occupational injury may result in a major disability-producing dermatitis, and failure to recognize the existence of a latent period in the development of such a dermatitis may result in an erroneous interpretation of the question of liability In consideration of the prevalence of epidermophytosis, it is likely that many patients with occupational dermatoses of the hands may have previously had epidermophytosis infection or epidermophytid inflammation of the hands It is possible that such a condition, if proved to have shortly preceded the development of an occupational dermatitis, may be considered as having produced a local hypersusceptibility to the occupational disorder; also that a localized active epidermophytosis may cause a general hypersusceptibility to other types of inflammation and predispose to the development of an occupational dermatosis.

Dr. Jeffrey C. Michael, Houston, Texas: In Texas we have the same problem that Dr. Foerster mentioned, because we have no compensation for industrial dermatoses. However, we have the difficult question to answer whether the dermatitis that follows an injury is compensable as an accident. One of our problems is gasoline dermatitis. Gasoline is a primary irritant and there seems to be no satisfactory diluent. I have tried to work out a contact test for this substance which would be reliable. On myself as well as several other normal controls I have found that gasoline under an impermeable contact test produces an irritation after fifteen minutes' application Therefore with gasoline I am at present following the usual technic for contact tests but leaving this test on for only twelve minutes. I should like to know whether others have worked out a solution of this problem. With regard to the cases of mycotic dermatitis, in the transactions of the Copenhagen congress there is a discussion by Keller of Freiburg on the paper of Mattas in which it is stated that in the vesicular type of fungous infections those vesicles having an acid content never show fungi. During the past summer I tried this out in about sixty cases and found that Keller's statement was correct. My experience showed that the vesicles with alkaline contents might or might not show fungi Of course, these results ought to be corroborated, but it now seems fairly certain that a good deal of time can be saved by discarding the vesicles with acid contents and examining only those that are alkaline.

Dr. Lester Hollander, Pittsburgh: There are two points of information which I should like the authors to give. First, if the definition of allergy as stated by Doerr is correct, that it is a reaction different from the normal, occurring in a minority of individuals, is it not questionable whether dermatitis produced on this basis in industry is compensable or not? The specific substance that produced 104 cases of dermatitis in the series of Drs Osborne and Putnam cannot be classed as an allergy producer I would class it as a strong irritant, which undoubtedly would cause a dermatitis in most individuals and unquestionably should be compensable. The second point with regard to industrial dermatoses was brought up by Oppenheim of Vienna at the Copenhagen congress; namely, that not only specific substances but the manner in which certain work is performed is a factor in their production: for instance, the rolling motion of the hands in the bakers. I wonder whether the authors can throw light on this question

Dr Bedford Shelmire, Dallas, Texas: In a suit for compensation in a case of occupational dermatitis, the question arises as to whether the individual developed the sensitization from daily exposure to the exogenous substance in question or was already sensitive when he began the occupation If the sensitization developed from exposure to some substance encountered in his work, the injury is certainly compensable. Theoretically it appears that individuals do become sensitized by repeated exposure to irritants encountered in their work Practically this has not been the case in my hands, for attempts to sensitize individuals by repeated exposure to turpentine, gasoline and the like have met complete failure. On the other hand, I have easily sensitized individuals to poison ivy (radicans) It has been conclusively shown that specific hypersensitiveness to poison ivy develops only after previous contact with the plant It is a recorded fact that the Eskimos of Baffin-Land are not sensitive to the extract of the ivy plant. As the ivy plant does not grow north of the mouth of the St Lawrence river, these natives in Baffin-Land have never received a sensitizing exposure. The American Indians, who are believed to be closely related to the Eskimos, have been found by many observers to be as frequently subject to ivy sensitiveness as are the white people. New-born infants without exception have been found nonsensitive to ivy. When these infants were tested some weeks following the initial or sensitizing dose, they were found sensitive in about the same percentage as adults. From these observations one is inclined to believe that certain individuals become specifically sensitized to substances encountered in their work.

Dr N P Anderson, Los Angeles: One must be most cautious in expressing an opinion regarding compensability in many cases In the case of the workers in the rayon plant cited by the authors, where some 100 of the employees developed a dermatitis following the use of a new type of oil, I think that there can be no question as to the cause or the compensability. However, let us suppose that only one worker out of the 200 or more exposed developed a dermatitis and that he reacted positively to the patch test of the oil. We would still probably maintain the position that such a dermatitis was compensable. However, let us look at the other side of the question. The dermatologist uses ammoniated mercury a great deal. Suppose now, a patient to whom a 2 or 3 per cent ammoniated mercury ointment was prescribed develops a severe local dermatitis that can be proved to be due to the ammoniated mercury ointment; or let us go further and say he develops a generalized exfoliating dermatitis and requires hospitalization for a month or so. In such a case, and one that can happen to any one of us, do we hold ourselves responsible for the condition? Are we willing to pay the patient's hospital bill? If one of our stenographers develops a dermatitis due to carbon paper, should we be held responsible? If a severe and disabling eruption occurs after a hair dresser or beauty shop operator applies an aniline dye for cosmetic purposes, is the hair dresser to be held responsible for such a condition? I do not know the answers to these questions but feel that one should exercise great caution in expressing opinions. In a recent paper, as yet unpublished, the statement has been made that out of some 280 cases of suspected industrial dermatitis, less than 5 per cent of them were actually due to an industrial irritant. I believe this percentage is much too low and should like to ask the authors, In what proportion of all their industrial dermatoses did they prove the cause to be an irritant of occupational nature?

Dr. Fred D. Weidman, Philadelphia: The fact should not be overlooked that fungi can arrive on the patient's skin as the result of contact with raw materials used in industry. I bring the point up as a text to illustrate that it is necessary to have a complete perspective of the biology of fungi in epidermophytosis if one would be equitable to employee and employer alike. A slight knowledge of the habitat of dermatophytes in nature has been obtained. It has been shown that these organisms can not only exist but grow on such things as straw, hay, feathers and leather. Kingery has shown that a fungus of pears is associated with canner's dermatitis in the Northwest. In California, a monilia of oranges induces dermatitis in orange packers. In Formosa, an organism was present in the stalks of hibiscus, a plant which entered into the fabrication of flax and which induced a dermatitis. From a different angle, it is known that diabetes predisposes to certain fungous infections. Dogs with diabetes are susceptible to oidium infection, whereas nondiabetic dogs are not. A problem that came up in a Massachusetts case concerned a person who had both a turpentine dermatitis and a mycosis. The question was whether the mycosis was superimposed, and I understand that is an important point in law. This is a vital point, on which the dermatologist can be of great service. The point is the early examination of these patients to discover whether, *early in the course of the difficulty*, a fungus could be demonstrated.

Dr. Harold N. Cole, Cleveland: The time element must always be considered in connection with these cases. Many times it is difficult to decide whether it is an industrial condition or whether it is something these individuals are coming in contact with in their daily life. I will mention a couple of instances. A stenographer came to us with an eruption of the face and neck which came and went: It was apparently not from carbon paper, the Sunday newspaper or anything she was using on her skin. Finally she told us one day that the process appeared at the same time the young man she was engaged to had been to see her. On investigation we found that this young man was using a hair tonic on his scalp. We had him come in, made a patch test and applied it to the patient, and found that the eruption was due to resorcinol, which was in the hair tonic. The time element may come in and we may find many of these cases due to something in the patient's daily life. In the case of a man with an eruption over the face and hands, it might have been due to something connected with his business but we could find no explanation. He went to California and there everything disappeared, but when he returned to Cleveland everything started up again. Further investigation of his home conditions disclosed that he was coming in contact with the offending agent there in the form of orris root used on his wife's hair.

Dr. Everett S. Lain, Oklahoma City: Had any members of the dental profession been present today and heard these discussions, they would have been first amused and then edified. They have for a long time had under discussion rubber as a basic dental material cause for troubles in the mouth. They are of the opinion that there is a possibility of oral mucosa irritation caused by sulphide of mercury, which gives the rubber the red appearance; also sulphur, which is used for hardening. They have concluded that most of the trouble is due to lack of proper curing. Many dentists recommend that dental plates be immersed in soda water during the night. They have learned by experience that it keeps them in better condition. I have learned that this irritation is more likely to occur in a mouth that is excessively acid rather than alkaline.

Dr. Earl D. Osborne, Buffalo: I shall confine my remarks to a few of the questions which have been asked. It has been inferred, by a few of the speakers, that the cases at the rayon plant were examples of irritation and not of true allergy. I would point out again that these workmen had never been exposed to the oil before. Had it been an irritative dermatitis, some evidence of irritation would have been apparent within the first twenty-four hours. As a matter of fact, no case appeared until the third day, and new cases were appearing after two weeks' use of the oil. Furthermore, the individuals presenting the dermatitis showed a positive patch test coincident with the beginning of the dermatitis, whereas it was negative before. Various solutions of the oil were used in testing, that is, from 1 : 10,000 down to the full strength oil. In at least one individual who was highly sensitive, the test with a fraction of a drop of 1 : 1,000 dilution of the oil produced a terrific dermatitis. Any one who attempts this work must perfect himself in the technic of the patch test. Dr. Lane brought up several important questions. What is the influence of previous attacks of dermatitis on the development of allergy? Several factors are concerned in this question. A person who has had repeated attacks of dermatitis on the hands and arms from any cause certainly absorbs more chemical into the general system from these areas than a person who has had a normal skin on those areas. But one should keep one's conception of allergy clear and not place the blame for the subsequent dermatitis on the first dermatitis when there is a definite allergic factor which can be elicited by adequate testing. Furthermore, one must always remember group sensitization. For instance, turpentine is only one member of a group of chemicals derived from wood which may be in the same chemical group as a number of other substances derived from the same source. I believe that further observation will show that in every new case of dermatitis due to exogenous substances a latent period will be demonstrated. As to disability compensation, certainly some of these individuals falling in one of the groups mentioned are entitled to a certain percentage of permanent disability. I refer particularly to those who have worked for varying periods of time and suddenly become extremely sensitive to an industrial chemical which necessitates their removal from that particular industry. There is no satisfactory treatment for these cases and just how many of them will clear up in time it is impossible to say. In doing tests with gasoline, we always use just a fraction of a drop, that is, the amount which will adhere to the tip of a wooden applicator stick. This is applied to the center of a small piece of gauze and exposed to the air for about thirty seconds and then applied to the skin with a layer of rubber dam over the gauze. In the case of true allergy, there will be an eczematous reaction more extensive than that due to irritation. Dr. Foerster raised the question of a dermatitis due to allergy following local injuries or bruises. This is a difficult phase for investigation. In the first place, one is dealing with an area of localized tissue sensitivity. If looked for, a definite period of latency should be found between the time of first exposure and the development of the dermatitis. Usually one does not have these patients under observation long enough to test their sensitivity. As soon as the dermatitis disappears, they disappear. In regard to the question of Dr. Shelmire, about whether allergy is acquired or inherited, my opinion is based on my own experience and the literature and is that in practically all cases it is acquired. At least the burden of proof is on those who would prove a congenital allergy.

SIGNIFICANCE OF IMMUNITY TESTS IN EPIDEMIOLOGY AS ILLUSTRATED IN YELLOW FEVER

T. P. HUGHES, Ph.D.
AND
W. A. SAWYER, M.D.
NEW YORK

Immunity tests are taking an important place in epidemiologic studies of several diseases of man. In diphtheria, scarlet fever and tuberculosis skin tests are commonly used. In poliomyelitis and yellow fever the serum is tested in animals, in the former by a neutralization test and in the latter by a protection test. If a result indicating immunity is obtained by any of these procedures, it is assumed that the person tested has previously been infected with the corresponding causative agent. Such evidence of a preceding immunizing infection is so frequent in persons who give no history of an attack of the disease under investigation that a high prevalence of unrecognized and subclinical cases is commonly assumed. Another possible explanation would be that the immunity tests are not so specific or so reliable as has been believed.

The specificity of immunity reactions, particularly the Schick test in diphtheria, has been questioned by Friedberger, Bock and Furstenheim,[1] who showed that the serums of persons or animals may possess certain antibodies—or at least physiologic properties enabling the serums to act on antigens—in the absence of specific immunization. Moreover, such antibodies were found to vary quantitatively with the age of the persons supplying the serum. These observations were presented as evidence that immunity reactions commonly supposed to be due to previous specific infection may depend on nonspecific physiologic factors. In immunity tests for each of the diseases that we have mentioned, including yellow fever in regions in which the disease is endemic or intermittently epidemic, it has been observed that the frequency of the result indicating immunity has, in general, risen with age. This is what would be expected if the immunity tests revealed the cumulative experience of the community with specific infection, but the hypothesis that the reactions may be physiologic maturation phenomena requires careful consideration.

Experiences in which immunity reactions are being obtained in persons who have presumably not been exposed to the specific infectious agent continue to be reported. It was observed by Heinbecker and Irvine-Jones[2] and also by Bay-Schmith[3] that a large percentage of certain Eskimos living in regions in which diphtheria had not been recognized gave a negative Schick reaction. Wells and Heinbecker,[4] however, later found organisms morphologically resembling diphtheria bacilli in the throats of Eskimos.

It has been observed by a number of investigators that high proportions of the population give negative reactions to the Schick and Dick tests in tropical and subtropical regions in which clinical diphtheria and scarlet fever are rare. Doull, Ferreira and Parreiras,[5] for example, obtained such results in Rio de Janeiro, and Parr, Goodale and Krischner[6] did the same in Syria.

A widespread immunity to poliomyelitis, as evidenced by serum neutralization tests, in adults with no history of poliomyelitis has been reported by Aycock and Kramer[7] and others. Recently Soule and McKinley[8] found that the serums from eight residents of Porto Rico, where clinical poliomyelitis is rare, all had the power of neutralizing poliomyelitis virus. The possible existence of a nonspecific maturation factor in poliomyelitis immunity has recently been discussed by Jungeblut and Engle[9] and the suggestion made that the immunity may be due to a hormonal balance characteristic of adult life.

An obvious way to determine the specificity and accuracy of immunity tests would be to apply them to a considerable number of persons whose previous experience with the corresponding infections is definitely known. In diseases as widespread as diphtheria, scarlet fever, tuberculosis and poliomyelitis, it is impossible at present to rule out previous contact with the causative organism in any inhabited region. In yellow fever, on the other hand, there are large populations known beyond reasonable doubt not to have been exposed to yellow fever or its virus. The insect vector is absent in large areas of the world, and in other regions, in which the vector is found, the disease has not been present within historical time.

Under these favorable conditions we undertook to investigate the specificity and accuracy of the immunity test now being widely used in epidemiologic studies of yellow fever: the intraperitoneal protection test in mice, as described by Sawyer and Lloyd.[10] In this test 0.03 cc. of sterile 2 per cent starch solution is injected intracerebrally into each of six anesthetized mice to localize the virus in the brain. Immediately thereafter the mouse is given an intraperitoneal injection of a mixture of 0.2 cc. of a 10 per cent suspension of virus-containing mouse brain and 0.4 cc. of the serum to be tested. Control groups of mice are given injections in the same way, except that known normal and immune serums are substituted for the serum to be tested. Mice dying from five to ten days after inoculation are considered to have died of yellow fever encephalitis if the results with the control groups are satisfactory. At least five out of six mice must survive if the result is to be considered "protection," and likewise five out of six must succumb if the result is "no protection." Results falling outside these narrow limits are regarded as "inconclusive."

TESTS OF SERUMS FROM CHINA

The part of the world most definitely known to be free from yellow fever is the Orient. Through the courtesy of Dr. J. B. Grant, Dr. H. L. Amoss and Dr. I C Fang, of the Peiping Union Medical College, we obtained serums from eighty-eight Chinese residing in Peiping who had never been outside of China. In

---

From the Yellow Fever Laboratory of the International Health Division, Rockefeller Foundation

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932

[1] Friedberger, E, Bock, G, and Fürstenheim, A: Ztschr f Immunitatsforsch. u. exper Therap 64: 294, 1929

[2] Heinbecker, P, and Irvine Jones, E I M J Immunol 15: 395 (Sept) 1928

[3] Bay Schmith, E: Klin Wchnschr 8: 974 (May 21) 1929

[4] Wells, J. R, and Heinbecker, P: Proc Soc. Exper Biol & Med 28: 887 (June) 1931.

[5] Doull J A, Ferreira, M J, and Parreiras, D J Prev Med 1: 503 and 513 (Nov) 1927

[6] Parr, L W, Goodale, R H, and Krischner, H J Prev Med 4: 39 (Jan) 1930

[7] Aycock, W. L, and Kramer, S D: J Prev Med 4: 189 and 201 (May) 1930

[8] Soule, M H, and McKinley, E B Proc Soc Exper. Biol & Med 29: 168 (Nov) 1931

[9] Jungeblut, C W, and Engle, E. T Proc Soc. Exper Biol & Med 29: 879 (April) 1932

[10] Sawyer, W A, and Lloyd, W: J Exper Med 54: 533 (Oct) 1931.

tables 1 and 2 is given the classification of the donors of these serums by age, sex and race. These known "normal" serums from China were examined by the protection test in mice. Whenever the quantity of serum would permit, the test was repeated on another day. In no case was the result "protection." The results are shown in table 3.

TABLE 1.—*Distribution of Donors of Serums by Age Groups*

	Number of Persons in Each Series Tested				
Age Group	Chinese Group	Canadian Group A	Canadian Group B	American Negro Group	Panamanian Group
5 - 9	..	..	..	..	6
10 - 14	..	..	..	..	8
15 - 19	..	2	..	3	17
20 - 24	3	20	20	6	13
25 - 29	11	9	13	4	11
30 - 34	12	1	12	1	12
35 - 39	15	1	5	2	10
40 - 44	37	1	2	2	5
45 - 49	6	4	2	..	1
50 - 54	3	6	1	2	3
55 - 59	..	2	1	..	4
60 - 64	..	4	..	..	3
65 - 69	..	..	1	..	..
70 - 74	..	..	1	..	1
75 - 79	..	1	..	..	..
80 - 84	..	..	..	..	1
85 - 89	..	..	..	..	1
Unknown	1	..	..	..	..
All ages	88	51	58	20	96

In the application of this standardized yellow fever protection test to serums of Chinese who could never have been exposed to yellow fever, there were no false positive results and few inconclusive ones. No evidence of physiologic factors capable of giving yellow fever immunity reactions was obtained by this method, not even in fully matured persons. The ages of the donors ranged from 21 to 53, and it will be noticed in table 1 that forty-six, or more than half, of the persons supplying serum were over 40 years of age. There was no opportunity to test a group of persons of the same race after known attacks of yellow fever.

SERUMS FROM CANADA

Another region from which yellow fever is definitely absent is Canada. Through the kindness of Dr. J. G. FitzGerald and Dr. D. T. Fraser, of the School of Hygiene, University of Toronto, we secured serums from 109 residents of Canada. The donors of serum were classified in two groups: (*A*) fifty-one who had never been outside of Canada and (*B*) fifty-eight who had been in noninfected parts of other countries—Europe or the western, north-central or northeastern parts of the United States. Except on the western coast, none of the donors who had been in the United States had been farther south than Baltimore. The distribution of the donors by age, sex and race is shown in tables 1 and 2. The results of the tests in mice for protective power against yellow fever are given in table 3. The tests were repeated only when the results were "inconclusive" or "protection." In each group there was one serum giving "protection," but when the test was repeated the result was "inconclusive." It happened that the first tests of both these specimens were in a series in which virus was used which had been kept frozen overnight to economize virus, contrary to the usual method. Subsequent experience has shown that such treatment causes appreciable injury to the virus, and tends to increase the number of mice surviving in the test and thus heighten the risk of false positive results indicating protection. It seemed important, however, to investigate more closely the five serums which gave "inconclusive" results in both tests or "protection" followed by an "inconclusive" result. Two of these five serums were shown by additional tests to belong rightfully with the group showing "no protection." The first was in group A and came from a woman aged 21. The number of mice surviving was only three out of six and two out of five, respectively, in the first two tests, and was none out of five in each of three successive tests made with a new specimen of serum. The second of these serums was in group B and was from a man, aged 48. Only two mice out of six survived in each of the first two tests and one out of six in a third test.

TABLE 2.—*Race and Sex of Donors of Serums*

		Sex		Race or Color				
Serum Group	Total No. Donors	Male	Female	White	Chinese	Negro	Indian	Mestizo
Chinese........	88	78	9*	..	88	..	..	..
Canadian A....	51	33	18	51	..	..	..	..
Canadian B....	58	31	27	58	..	..	..	..
American Negro	20	15	5	..	..	20	..	..
Panamanian...	96	45	51	9	..	52	14	21

* Sex not specified in one case.

TABLE 3.—*Results of Tests and Retests of Chinese and Canadian Serums*

	First Test		Second Test			
Serum Groups	Result	Number of Serums	Number Giving No Protection	Number Giving Inconclusive Result	Number Giving Protection	Test Not Repeated
Chinese	No protection	79	66	6	0	7
	Inconclusive	9	5	3	0	1
	Protection	0	0	0	0	0
	Total	88	71	9	0	8
Canadian A	No protection	37	..	..	..	37
	Inconclusive	13	10	1	0	2
	Protection	1	0	1	0	0
	Total	51	10	2	0	39
Canadian B	No protection	45	..	..	..	45
	Inconclusive	12	10	2	0	0
	Protection	1	0	1	0	0
	Total	58	10	3	0	45

This leaves three serums in which a slight protective power was suspected. The particulars regarding the donors and the results of the successive protection tests are as follows:

1. Group A. Woman. Age 28. Mouse survival ratio: first specimen, 4/5, 2/6; second specimen, 3/5, 3/6, 2/6.
2. Group B. Woman. Age 22. Mouse survival ratio: first specimen, 3/6, 3/5, 4/6; second specimen, 1/6, 5/6, 5/6, 4/6.
3. Group B. Woman. Age 39. Mouse survival ratio: first specimen, 4/5, 2/6; second specimen, 0/6, 2/5, 1/6, 0/6.

The number of successive inconclusive results obtained with serum 1 suggests that it may have had slightly more protective power than the average normal serum, but that the one "positive" result was not representative and was due to the use of virus attenuated by freezing and storage overnight. In serum 3 the one positive result was also obviously a mistake due to the same deviation from the usual technic. Serum 2, on the other hand, is of special interest. Except for the high mortality in the mice used in the first test with the second specimen, which cannot be explained, the survival ratio ranged from 3/6 to 5/6 and showed definite protective power just under the amount capable of giving "protection" with regularity.

We have, therefore, 1 serum, among 109 Canadian serums, which seems to give the results "inconclusive" and "protection," because of some property in the serum itself.

SERUMS FROM PERSONS KNOWN TO HAVE BEEN INFECTED

With few exceptions the Canadian serums came from persons of British stock. The serum of a small number of persons of the same general stock, who had previously experienced known infections with yellow fever virus, had been tested in mice by Sawyer, Kitchen and Lloyd,[11] and their results are summarized in table 4. In the last column of the table is given the range of the titers of the serums when tested in serial dilutions by the intraperitoneal protection test in mice. It will be noticed that serums of all these twenty-one persons known to have been infected with virus from three weeks to thirty years before their serum was obtained gave definite "protection" even when diluted. The one serum with a low titer (1/4) was from a person infected thirty years before in Cuba in an experiment of the Army Yellow Fever Commission under Walter Reed.

Table 4.—*Results of Tests of Serums from Persons Recovered from Yellow Fever or Immunized by Vaccination*

Method of Immunization	Time Interval Since Immunization	Result of Tests			Range of Titers
		No Protection	Inconclusive	Protection	
Known attack of yellow fever	26 to 30 years	0	0	3	1/4 to 1/512
Accidental laboratory infections	13 to 31 months	0	0	6	1/128 to 1/512
Vaccination with yellow fever virus and immune serum	3 to 30 weeks	0	0	12	1/64 to 1/512
Total		0	0	21	

These results give evidence consistent with that obtained in numerous experiments in monkeys and illustrate the certainty with which protective power can be demonstrated in the serums of persons known to have been infected in recent years. The low titer obtained long after vaccination in one case suggests that the antibody content of the serum of a person who has recovered from yellow fever may fall with the lapse of time in some cases and perhaps reach a point at which the protective power of the serum is not demonstrable.

TESTS OF THE SERUMS OF AMERICAN NEGROES

As the protection test in mice is being used in extensive epidemiologic surveys in Africa, it was of interest to test a group of Negroes who had probably not been exposed to yellow fever virus. It is well known that full-blooded Negroes in Africa and elsewhere, although apparently susceptible to infection, are more resistant to the effects of the disease than are persons of European stock. Through the kindness of Dr. J. H. Janney, Health Officer of Anne Arundel County, Maryland, we received 20 serums from Negroes residing in or near Annapolis. That their ancestry was principally Negro was concluded from their skin color. All were born in America, but four had been farther south than Maryland or had visited in foreign countries.

The results of the protection tests were "no protection" in nineteen instances and "inconclusive" in one. None of the tests have as yet been repeated. There was no evidence of any protective power in these twenty serums.

SERUMS FROM PANAMA

Col. J. F. Siler, Chief Health Officer of the Canal Zone, and Dr. L. B. Bates, Chief of the Board of Health Laboratory at Ancon, were kind enough to send us ninety-six serums collected in the Republic of Panama and the Canal Zone. The group of donors was considered a representative sample of the permanent population. They had all been born on the Isthmus of Panama and had always lived there. They were persons not known to have experienced yellow fever. The donors are classified by age, sex and race in tables 1 and 2, and the results of the protection tests, classified by the ages of the donors, are given in table 5. Serums giving inconclusive results in the first test were retested once, and the second result was accepted if decisive. Without knowledge of the history of yellow fever in the Isthmus of Panama, a region from which the disease is now absent, this table might have been taken as evidence in favor of a maturation factor in yellow fever immunity, inasmuch as demonstrable immunity was found to be absent from the younger persons and present in many of the older ones. It happens, however, that the last known case of yellow fever on the Isthmus was in the year 1905, twenty-seven years ago, and all of the fourteen persons whose serums showed protective power were old enough to have been exposed prior to that date. None of the fifty-five serums from persons under 30 years of age gave protection.

THE SIGNIFICANCE OF INCONCLUSIVE RESULTS

In every large series of tests a certain minimum number of "inconclusive" results (those in which more than one and fewer than five mice out of six survive), arranged according to chance distribution, is to be expected and is of *no significance.* The *mortality* rate of mice in a series of our tests of known nonprotective serums was computed for us by Dr. H. Muench and found to be 0.879, or 87.9 per cent. With this mortality rate, the theoretical distribution of mouse survival ratios in 100 such tests would be as follows: 0/6 in 46 instances, 1/6 in 38 instances, 2/6 in 13 instances, 3/6 in 3 instances and 4/6, 5/6 or 6/6 in no instances. The number of serums giving "no pro-

Table 5.—*Results of Tests of Serums from Panama by Age Groups of Donors*

Age Group of Donors	Number of Serums Giving Following Results		
	Protection	Inconclusive	No Protection
5- 9	..	..	6
10-14	..	..	8
15-19	..	1	16
20-24	..	2	11
25-29	..	..	11
30-34	2	1	9
35-39	5	1	4
40-44	1		4
45-49	..	..	1
50-54	1	..	2
55-59	2	..	2
60-64	1	..	2
65-69	..		..
70-74	..	..	1
75-79	..		
80-84	1	..	..
85-89	1	..	
Totals	14	5	77

---

[11] Sawyer, W. A.; Kitchen, S. F., and Lloyd, W.: J. Exper. Med. **55**: 945 (June) 1932.

tection" would be 84 per cent of the total, and those giving "inconclusive" results would be 16 per cent. None would give "protection."

CAUSES OF ERROR

If the strain of mice used in the protection test should be unsuitable because of low susceptibility to yellow fever virus, or if the virus in the suspension injected should be weak or insufficient in amount, there would be danger of getting false "protection," but ordinarily the controls would protect against these errors. If deaths should be occurring among the mice from other causes than yellow fever encephalitis, the tendency would be to get "no protection" with serums which are really protective. Unhealthy mice should not be used.

Properties of the serum may also be responsible for mistakes in concluding that the donor had previously been either nonexposed or infected. The serum may have deteriorated since the blood was drawn, or it may possess a degree of protective power not due to experience with the specific virus. Such protective power was not detected in our series of tests of known normal serums, except in one case in the Canadian series. In that case it was not high enough to give "protection" with regularity. Doubtless more "false positives" revealing this weak physiologic protective power of serum would be obtained if the test were made unduly sensitive by increasing the amount of serum used or by diminishing the amount of virus. Careful quantitative adjustments are necessary in every immunity test. The evidence here presented seems to show, however, that in the sensitive test under study the nonspecific physiologic protective power of serums from persons never infected with yellow fever virus is not strong enough to give false "protection," except in rare instances. The possibility of getting "no protection" exceptionally with the serum of persons who actually had yellow fever many years ago must also be taken into consideration.

Although mistakes due to the presence of physiologic protective substances, or to the loss of specific antibodies with the passage of time, probably do occur in rare individual instances and additional mistakes are made through errors of technic or the use of unsuitable animals, we are convinced that, when made with reasonable care, the test is remarkably specific and reliable, and that a positive test is strong evidence that the donor of the serum has previously been infected with yellow fever virus.

SUMMARY

The yellow fever protection test in mice, as an example of the immunity tests used in epidemiologic studies, was investigated for specificity and reliability. Serums of persons in Canada and China who could never have been exposed to yellow fever virus were tested for protective power against this virus. In only one instance was there any demonstrable nonspecific protective power and it was insufficient in amount to give protection with regularity. The test was found to be highly specific and useful as an indicator of past infection.

ABSTRACT OF DISCUSSION

DR. BOLIVAR J. LLOYD, Washington, D. C.: Epidemiologists will now be able to go into those places where yellow fever may have been present but unrecognized and be able to say definitely whether or not yellow fever has been present and just about how long. Conversely, they will be able to prevent false alarms. I should like to see Drs. Hughes and Sawyer go further with their experiments, as no doubt they will. I should like to know whether or not they can immunize on a large scale by giving their attenuated virus to human beings without the protection of immune serum.

DR. C. W. JUNGEBLUT, New York: The results of Drs. Hughes and Sawyer go far toward justifying the conclusion that endemic resistance to yellow fever, as determined by the neutralizing power of the serum, is essentially due to an acquired specific immunity. However, in my opinion it would be hazardous, on the basis of this one unusually illuminating example, to rely indiscriminately on serologic tests in epidemiologic studies. The normal human serum contains a large variety of substances capable of reacting with just as large a variety of antigens. Since Buchner's discovery of alexin, immunologists have tried in vain to explain the origin of these mysterious so-called normal antibodies and their relationship to typical immune bodies. This constitutes one of the most pressing problems in modern immunology. Certainly some of these antibody-like agencies, such as trypanocidal or anthracocidal substances, for instance, cannot possibly have been formed as the result of previous exposure to the specific antigen. In acute anterior poliomyelitis the question as to the nature and origin of the virucidal substances encountered in normal adult serums is unsettled. With such a limited incidence of the disease and such a restricted morbidity, knowledge of the actual dissemination of the infectious agent remains speculative. Utilization of the serologic test in an inverse manner as a means of judging previous contact with and by implication the immunizing effect of the virus is neither justified by clinical experience nor supported by experimental facts. Moreover, the statistical information yielded by such tests is not at all consistent. In my own work I have failed to recognize any convincing relation between density of population and absence or presence of the virucidal property. Through Dr. Sawyer's courtesy I have been able to examine some of the same Chinese serums just reported as lacking virucidal power against yellow fever virus, for their capacity to inactivate the virus of poliomyelitis. I have also had the opportunity of testing a small number of serums collected from isolated Eskimo tribes in Greenland. All of these serums have neutralized the poliomyelitis virus. Those who assert the specific nature of the immune bodies against poliomyelitis virus will find it difficult to reconcile these observations with the complete or practically complete absence of epidemic poliomyelitis in either China or Greenland.

DR. C. A. MOHR, Mobile, Ala.: I should like to ask the authors to state briefly under what conditions the blood of persons who are supposed to have had yellow fever can be used for experimental purposes. How it is transported?

DR. W. A. SAWYER, New York: Dr. Jungeblut has spoken of the danger of applying the results obtained in yellow fever immunity tests to other diseases and drawing the conclusion that in none of these other diseases, poliomyelitis in particular, does one get definite evidence of immunity, by accepted tests, in persons who have not previously been immunized by infection. His position is logically sound, but, unless populations can be found which can be shown to have been free from these other diseases since the birth of the present inhabitants, it will be unjustified to assume that the adults giving reactions indicating immunity have not been previously exposed to the corresponding specific infectious agent. Every immunity test used in epidemiologic studies should be quantitatively adjusted so that it does not give positive tests in persons who have not been exposed. If immunity tests are made unduly sensitive, the number of "false" positive and inconclusive results becomes considerable and difficult to interpret. We hope that Dr. Jungeblut will be able to find the explanation of some of the differences between unexposed individuals in the extent to which they possess the "normal antibodies" responsible for such reactions. As far as I am aware, it has not been clearly shown that complete or partial reactions of immunity in unexposed animals or persons have any demonstrable relation to susceptibility to the corresponding disease. In our experience with rhesus monkeys we find that the serums of certain normal animals give partial protection against yellow fever virus, but nevertheless on subsequent inoculation most of these monkeys are found to be definitely susceptible. In closing, I shall answer the question of

Dr. Mohr. Serum from a person who has recovered from yellow fever at any time in the past will usually have demonstrable protective power against yellow fever virus. If sterile, such serum will retain its antibodies at ordinary temperatures long enough to be sent by mail to our laboratory from anywhere in the United States. Any one wishing to cooperate in our investigation by sending serum should send enough for the tests —not less than 10 cc.

PRINCIPLES OF TREATMENT IN THE COMMON ARTERIAL DISEASES OF THE EXTREMITIES

W. J. MERLE SCOTT, M.D.
AND
JOHN J. MORTON, M.D.
ROCHESTER, N. Y.

Clinical interest in a given field is usually proportional to its therapeutic possibilities. Consequently, it is not surprising that until recently the common arterial diseases of the extremities have attracted comparatively little attention. Thus one of the leading systems of medicine, in its 600 page volume dealing with diseases of the heart, blood vessels and blood, devotes just four pages to chronic arterial diseases. And thrombo-angiitis obliterans is not even mentioned! With but few exceptions, internists and surgeons have neglected this problem of the common peripheral arterial diseases. Dr. Finney's comment at a surgical clinic that any one can amputate a leg, but that it takes a good physician to save one, has long been true. Yet in the past, investigations of peripheral arterial disease have been chiefly concerned with the end-stages. Attention has been focused on the extremity showing actual or threatened gangrene. Before this time arrives, a certain fatalism has characterized the attitude of the medical profession toward these conditions. It is true that since Buerger directed attention to presenile arterial thrombosis on an inflammatory basis as distinguished from senile or diabetic arteriosclerosis, this clinical differentiation has been made fairly successfully. It is also true that many different remedies have been proposed for the treatment of thrombo-angiitis obliterans. However, specific treatment of the peripheral arterial diseases based on an anatomicopathologic classification has been disappointing. There is no treatment for thrombo-angiitis obliterans as such. The outcome of the disease and the effect of the various forms of therapy depend on a physiologic function, namely, the state of the local circulation, and not on the anatomic condition of the main arteries. The predominant importance of function rather than structural change in the peripheral vascular diseases has received recognition in their study only in the last few years.

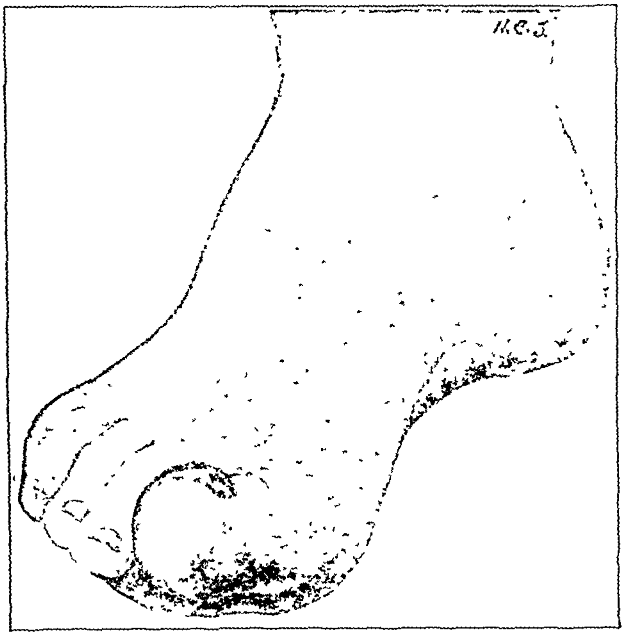


Fig. 1—Thrombo-angiitis obliterans. Physical signs present obvious evidence of circulatory impairment (ischemic areas with adjacent rubor). They do not demonstrate whether the deficient arterial supply is physiologically dependent on vasoconstrictor spasm or on mechanical occlusion.

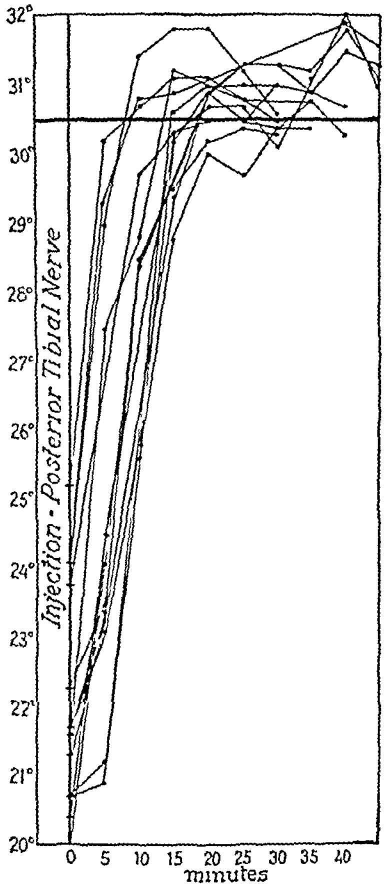


Fig 2—Response of the normal peripheral circulation to nerve block The temperatures in the distal, anesthetized part of the extremities come up to approximately the same level under standard conditions. (All measurements of surface temperature were made with the Tycos dermatherm.)

Brown-Séquard, and, soon thereafter, Raynaud, pointed out that persistent arterial spasm could result in serious circulatory impairment in the extremity, even leading to gangrene. The rôle of such vascular spasm in producing the ischemic paroxysms of Raynaud's disease is common knowledge. However, only in the last few years has it been shown that spasm is an important element in many instances of the common arterial diseases in the extremities. Since the recognition of this significant fact and the development of satisfactory methods for determining the vasoconstriction in the clinical syndromes, much progress has been made in treatment. The attitude of hopelessness in regard to peripheral arterial disorders should be abandoned. In place of the previous fatalism there are emerging certain definite principles of treatment in these conditions.

Whatever the type of the common arterial disease, when symptoms are produced they are dependent on an impairment in the local circulation. Such a circulatory deficiency is recognized by its symptoms and the signs elicited through ordinary methods of physical examination. The most important of such symptoms and signs are claudication, pain or other sensory

---

From the Department of Surgery, the University of Rochester School of Medicine and Dentistry.

This study was aided by a grant from the Fluid Research Fund of the Rockefeller Foundation.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Third Annual Meeting of the American Medical Association, New Orleans, May 13, 1932.

changes, dependent rubor, work and postural ischemia, the angle of circulatory efficiency, the absence of arterial pulsation, trophic changes, etc. Thus the clinical examination determines whether or not there is a local circulatory deficiency (fig. 1). When this deficiency is present it is dependent on one or both of two factors affecting the arteries, viz., first, mechanical obstruction, and second, vascular spasm. The differentiation of these two elements as the cause of the circulatory deficiency requires a special test.

TEST FOR SPASM AND OCCLUSION

The simplest and most direct method of determining whether vasoconstriction is present is by observing the effect of temporarily paralyzing the sympathetic vasomotor fibers. This is most conveniently performed by using local anesthesia to interrupt the vasoconstrictor pathway at some point between the central nervous system and the terminal vessels.[1] When this is done in the normal person, there is a marked increase in the local circulation as soon as the vasoconstrictor nerve fibers are paralyzed. It has been found that under standard conditions the circulation in the distal part of the extremity reaches approximately the same level in all normal persons (fig. 2). In occlusive arterial disease without spasm there is no increase in the deficient flow of blood under such conditions (fig. 3). But if vasoconstrictor spasm plays an important rôle in the production of the circulatory impairment, the blood flow is also improved in the anesthetic field. An important point under such circumstances is whether or not the local circulation rate reaches the normal level. If it does, the circulatory impairment is entirely dependent on spasm. If it does not, the amount by which it fails to reach the normal level, as measured by the surface temperature, represents the contribution of mechanical occlusion (fig. 4). This simple test determines whether vasoconstrictor spasm or mechanical occlusion is responsible for the circulatory deficiency in the extremity, or, if both are present, the relative significance of each. In every case of peripheral arterial disease, irrespective of the clinical diagnosis, it is essential to determine the relative proportions of these elements before a rational basis for treatment can be established. In different stages of the same disease, the proportions may change greatly. Thus it is our experience that most cases of thrombo-angiitis obliterans early in the disease usually show a considerable element of spasm, and that this is often the determining factor in the ischemia at this time. Later, however, the thrombotic process may become so extensive that we find an insignificant amount, or absence of spasm (fig. 5). Yet the diagnosis of the disease has not changed. All arterial disorders in the extremities require not only a diagnosis of the anatomic condition but also an evaluation of the physiologic state of the local circulation.

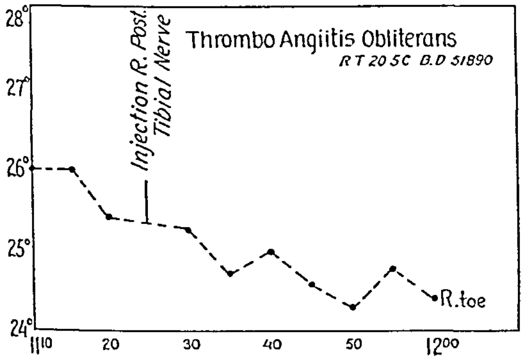


Fig. 3.—Thrombo-angiitis obliterans. The circulatory deficiency in this case is due solely to mechanical occlusion. There is no increase in the flow of blood after nerve block.

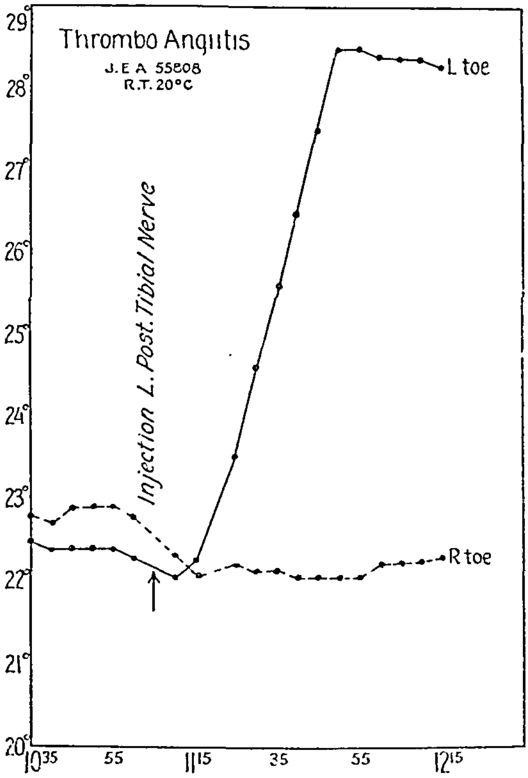


Fig. 4.—Thrombo-angiitis obliterans. Vasoconstriction is chiefly responsible in this case for impairment in the local blood supply. After anesthetizing the nerve the increased temperature of the surface demonstrates the improved local circulation.

TREATMENT

Treatment should always be directed first toward preventing the ischemia from doing more harm than necessary. This is a general principle and applies to all cases irrespective of their cause. Under this heading come such simple but important measures as rest, postural treatment and exercise, relief from pain and, particularly, scrupulous prophylaxis against infection.[2] The choice of other measures, however, depends on the presence or absence of spasm. When occlusion is shown by a functional test to be the causative factor, then at present there is no way to augment greatly the diminished flow of blood to the extremity. In such cases, the principle of treatment is to aid the more peripheral distribution of the small amount of arterial blood available. We have found venous ligation to be the most valuable procedure for this purpose.[3] This is no panacea in the treatment in this group of cases, but it appears to be of benefit in cases in which the circulation is not hopelessly inadequate. On the whole, however, the prognosis in this group is much poorer than when there is a large element of spasm.

---

[1] The basis for and the technic of this test have been recorded in our previous publications. Scott, W. J. Merle, and Morton, John J.: Sympathetic Activity in Certain Diseases, Especially Those of the Peripheral Circulation, Arch. Int. Med. **48**: 1065 (Dec.) 1931; The Differentiation of Peripheral Arterial Spasm and Occlusion in Ambulatory Patients, J. A. M. A. **97**: 1212 (Oct. 24) 1931.

[2] The importance of these general measures and their application is well outlined by Dr. A. W. Allen (Ann. Surg. **92**: 931 [Nov.] 1930).

[3] The results of this treatment as used in our clinic have recently been reported. Pearse, H. E.: The Use of Vein Ligation in the Treatment of Arteriosclerotic and Diabetic Gangrene, J. A. M. A. **98**: 866 (March 12) 1932.

In the latter group, the most important principle of any treatment adopted is to overcome, either temporarily or permanently, the arterial spasm. Various methods to accomplish this purpose have been used. Among them are, particularly, sympathetic denervation, either at the level of the chain or in the peripheral nerves, fever-producing injections, local or general hyperthermia and the use of vasodilating drugs. The more conservative measures, such as the use of drugs and of local heat, have proved unsatisfactory for effective control of arterial spasm. The immoderate use of tobacco has long been suspected clinically of being detrimental. Coller has recently shown that it causes definite vasoconstriction. Certainly tobacco should be denied these patients, at least in excess. This prohibition, even when carried out by the patient, is not sufficient to overcome the vasospasm already present.

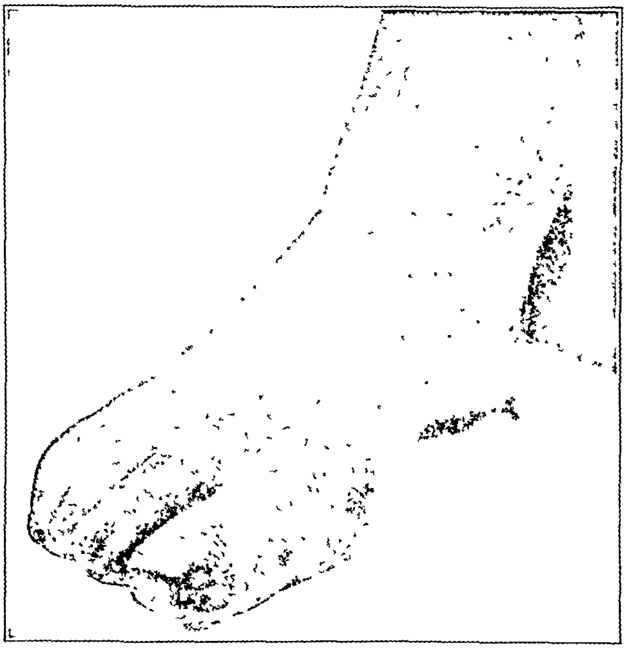


Fig. 5—Thrombo-angiitis obliterans The left leg was amputated eleven years previously There is marked dependent rubor in the right foot and a patch of dry gangrene on the great toe (Figure 3 shows the response of this patient to nerve block) This is the late stage of thrombo-angiitis obliterans, when the extension of the thrombotic process completely overcomes or obscures the spastic element.

Vasomotor denervation of the lower extremity by lumbar sympathetic ganglionectomy produces a continuous improvement in the local circulation to the same degree as was caused temporarily by the test with local anesthesia.[4] This operation is the procedure of choice in the young or middle-aged adult when the clinical evidence of a local circulatory deficiency and the functional importance of vasoconstrictor spasm are clearly established. The one important objection to this form of treatment is that it requires a major operation. The peripheral vasodilatation accompanying the systemic reaction to the injection of protein or inorganic chemicals has been advocated as a method of treatment in the milder cases in place of surgical intervention. The effect lasts from a few hours to several days. This method would be useful as a substitute for operation in the older group of patients concerning the condition of whose myocardium there may be some doubt. It is exactly in these patients, however, that the dangers of such reactions become greater. Consequently, it does not help in the more difficult decision as to the method of choice for overcoming spasm. For these patients, paravertebral injections of alcohol have been advocated. This procedure probably does not give permanent relief; it is usually followed by rather severe neuritic pains, and would make a later operation, if necessary, much more difficult. Periarterial sympathectomy does not have sufficient merit to warrant its use in such cases. Injection of alcohol into the peripheral nerves below the main muscular branches[5] not only relieves pain, but may result in improvement in the local circulation when the latter is impaired by vasoconstrictor spasm. The two objections to this method of accomplishing the latter purpose are: First, anesthesia in the peripheral area accompanies the vasomotor paralysis. Second, vasoconstrictor innervation to the vessels is reestablished in a few months. This method, however, is helpful in some difficult cases when operation and fever-producing injections are absolutely contraindicated by the patient's condition. The one procedure that permanently overcomes the detrimental effects of sympathetic vasoconstriction in arterial disease is sympathetic ganglionectomy. We hope some day to have a simpler method of removing as satisfactorily arterial spasm in the extremities.

ABSTRACT OF DISCUSSION

Dr. Rudolph Matas, New Orleans: The medical profession is indebted to Drs. Scott and Morton for their constant efforts to determine the rôle of vasomotor spasm as a cause of arterial obstruction and particularly for devising a simple and practical method of differentiating between spastic and arterial obstruction in the lower extremities. Their method determines not only the existence of spasm but also the extent or degree to which this contributes to the arterial obstructions. Until lately it has been necessary to depend on general or spinal anesthesia and the injection of typhoid vaccines and other fever producing substances to obtain the information that is now readily furnished by the simple posttibial block devised by Scott and Morton. From the therapeutic point of view, stress has been laid on sympathetic ganglionectomy, radicotomy and periarterial sympathectomy as the most certain and permanent means of obtaining vasomotor dilatation and in this way improving the capillary and arteriolar circulation in all cases in which spasm is a contributing factor in the ischemia. But it is not possible to disguise the fact that a lumbar ganglionectomy or radicotomy is a serious operation which is not applicable to all patients even when physiologically indicated. Neither is the repeated induction of fever with typhoid vaccines always a satisfactory mode of treatment. As long as these peripheral circulatory diseases cannot be dealt with etiologically, the only hope of relief and prolonging the life of the dependent parts lies in the control and arrest of the vascular spasm and in the stimulation of the collateral circulation. But before resorting to the traumatizing radicotomies and ganglionectomies, one should exhaust all the simple and safer methods of physical therapy (postural exercises, heat, contrast baths, vascular gymnastics, alcoholization of nerves, irradiations, the so-called synthetic fever). In line with these suggestions, I would direct attention to the irradiation of the lumbar region with x-rays as a vasodilator procedure. These irradiations, recently advocated by Langeron and Desplats, Morin, Brunet, Zimmerman and others in France, are directed to the suprarenals and probably act on the lumbar ganglions as well. The authors quoted report relief in intermittent claudication, Buerger's disease and threatened arteriosclerotic gangrene. Further trial of angiodilating drugs, such as acetylcholine and the muscle extracts introduced by J. S. Schwartzman of Odessa and M. S. Schwartzman of London (1931), is to be encouraged. Such vasodilating agents are helpful in relieving pain, retarding gangrene and, when this is established, permitting more conservative amputations. Little benefit is to be expected from the preventive ligation of the popliteal vein in chronic obstructive circulatory disorders of the legs. The effect of popliteal ligations are certainly too transitory in arteriosclerotic disease; and when the veins are obstructed, as in thrombo-angiitis, this procedure is positively harmful. The ligation of the satellite vein coincidentally with arterial ligations is subject to special and well defined indication and there is no justification for the present tendency to the indiscriminate ligation of the satellite vein as a routine procedure. There is much that I could say in regard to other questions brought up by the paper of Drs. Scott and Morton, but I have only time to congratulate the authors and their American co-workers on lifting this important division of surgery from an empirical to a highly scientific plane.

---

[4] Our results in substantiation of this point have been presented before the American Surgical Association (The Quantitative Determination of Vasoconstrictor Spasm as a Basis of Therapy in Peripheral Arterial Disease, Ann. Surg, 1932, to be published).

[5] This procedure has been presented in a useful, systematized form by Smithwick and White (Surg., Gynec. & Obst. **51**: 394 [Aug] 1930).

DR. EDGAR V. ALLEN, Rochester, Minn.: Massive gangrene of an extremity as a result of arterial disease is a stage which is comparable to the metastasis of cancer and represents a calamity which is largely avoidable. Not only is it essential that these diseases be studied extensively in medical centers but the average practicing physician must have the benefit of such studies. The feeling of hopelessness should be abandoned. The paper of Drs. Scott and Morton represents, therefore, a valuable contribution. I feel that great care should be taken regarding nomenclature. The authors speak of vasoconstriction and I should like to ask whether spasm is really present or is it rather absence of maximal vasodilatation. Nature is said to be provident, but her failure is evident in arterial diseases of an occlusive nature; tissue dies from an inadequate blood supply; often an increased blood supply is available but not utilized. Some investigators view the state of the arterioles in occlusive arterial disease not as hypertonic, that is, spastic, but rather as isotonic in the sense that the arterioles in the normal extremity are not spastic but exhibit a tone that is indicated as normal. If the condition is really one of spasm, the term is correct; if not, a word that indicates lack of maximal dilatation should be coined. Simpler methods for influencing the sympathetic nervous system are needed. There is great need for an effective agent which will influence the fibers of the sympathetic nervous system in the region where vasodilatation is needed. What is needed is a drug such as has been suggested by Brown, which will paralyze the peripheral sympathetic nervous system, either temporarily so that such a drug may be used in much the same manner as insulin in diabetes, or semipermanently; that is, through the production of a neuritis of the peripheral sympathetic nervous system. My experience with roentgen irradiation over the lumbar or cervical sympathetic trunks has not been satisfactory. I am now trying direct irradiation of the hands and feet. If vasodilatation can be produced by irradiation of the sympathetic nervous system, why should it be given at an area far removed from that in which the major trouble lies? This is a fruitful period in the treatment of vascular diseases; advances are not linked solely with the name of any man but with groups of physicians.

DR. A. W. ALLEN, Boston: The management of peripheral vascular disorders in general has been neglected in times past, but a few enthusiastic individuals have attempted to treat these diseases, advocating one form of therapy or another; particularly is that true with regard to thrombo-angiitis obliterans. All these individuals have had some success. The various methods have something in their favor, but the keynote of their success is due to the fact that these patients are treated along general lines of hygienic measures, proper position of the extremity, more or less at the level of the heart, where the interchange of blood is at its best. These efforts have been successful, owing to the painstaking care of the patient. Thrombo-angiitis obliterans has a tendency to be a self-limiting disease; in a certain number of cases it does not progress, apparently, beyond a certain point, or the development of adequate collateral circulation keep pace with the disease. In the cases that show a high vasomotor gradient, the operations on the sympathetic nervous system as advocated by Adson certainly constitute the best form of therapy. Unfortunately, in cases of thrombo-angiitis obliterans there is a large group of patients who have a low vasomotor index and in whom this operation is perhaps of some use but does not relieve the pain of ulcerated lesions. Then one must resort to other methods. I have not had much success with vein ligation. I have, however, saved a number of extremities by alcoholic injection of the peripheral sensory nerves, and in this group of cases, hopeless to begin with, there have been a number of patients rehabilitated. The point which Dr. Edgar V. Allen has made about further studies along this line is, of course, important. The etiologic agent in thrombo-angiitis obliterans is not yet known, and, until it is, perhaps rational therapy in that direction cannot be instituted. The general measures that are best adapted for the comfort of these patients have been reported and should be studied by any one interested. Whatever else is done, whatever specific therapy is used, unless these general measures are used in conjunction, they are apt to result in failure.

DR. A. W. ADSON, Rochester, Minn.: In carrying out sympathectomy in cases of thrombo-angiitis obliterans, I have observed that if the patient complains of a lesion in one extremity, manifested by an ulcer, interference with the circulation in the opposite extremity is likely to be found, even though ulcers are not present, and that in performing a bilateral lumbar ganglionectomy, one has done something to check the progress in the opposite extremity. Yesterday I had occasion to report 100 consecutive cases of thrombo-angiitis obliterans in which operations had been performed in the Mayo Clinic. As is well known, our studies are made both by the medical and by the surgical groups, and with the exception of one case there has not been an advance of the disease to the opposite nonulcerated extremity. Dr. Barker, from the department of vascular diseases of the clinic, reviewed 240 cases of thrombo-angiitis obliterans; he learned that the incidence of amputation in the poorly treated cases was 25 per cent and that it was reduced to 14 per cent following active medical management. Reviewing the cases in which operation had been performed by Dr. Craig, Dr. Learmonth and myself, he found that it had been reduced to 5 per cent, showing that removal of the sympathetic chain or, rather, destroying the vasomotor fibers did play a tremendous part in improving the circulation and in the conservation of the extremities. Radiotherapy to the ganglions and to the vessels in the digits has proved to be of no value in the treatment of our cases.

DR. W. J. MERLE SCOTT, Rochester, N. Y.: We have tried acetylcholine, both in normal individuals and in individuals with proved vasoconstrictor spasm. I was unable to find that we did anything to those individuals, either temporarily or permanently. That is, we would get a little temporary rise in temperature occasionally, but nothing like the effect that is obtained from actually paralyzing the vasomotor fibers. In regard to ligation of the vein, certainly its results in the occlusive group are not at all of the same order as those following sympathectomy in the spastic groups. Pearce, who has reported the cases from our clinic followed for over a year, concluded that in a certain significant proportion of them the clinical results were improved by venous ligation; but that is a difficult thing to be certain of. There is no doubt that there is a temporary increase in the peripheral skin circulation. Dr. Edgar V. Allen brings up an important question, that of nomenclature. I think that most of the notions now current must be revamped, and certainly textbook classifications of vascular diseases. After we recognized Buerger's disease we found that it didn't necessarily occur in the Jew. Then we found that it occurred in other regions of the body and other organs. Then it was found that there could be calcification of the vessels in it, and so on. Now today I must confess that in at least 50 per cent of the patients who come to me with common presenile or early senile vascular lesions I cannot state positively whether they have thrombo-angiitis obliterans or whether they have some other form of vascular disease. But I can tell whether or not physiologically spasm is playing an important rôle in creating the circulatory deficiency. Dr. A. W. Allen has brough up what to me is the crucial point in the therapy of thrombo-angiitis obliterans; namely, the development of collateral circulation. I feel that the evidence available from our studies and those from other clinics strongly suggests that the most effective way of increasing to the maximum the collateral circulation in the spastic group is by sympathetic ganglionectomy. Dr. Morton and I have tried to bring out in this paper certain principles of treatment, and I think that those principles really are now beginning to emerge as something to guide us rather than the feeling of hopelessness, of not knowing what to do in the face of these difficult problems.

THE TRANQUILIZING POTENCY OF MORPHINE, PANTOPON, CODEINE, PAPAVERINE AND NARCOTINE

RESULTS OF TESTS ON THE RAT

O. W. BARLOW, Ph.D.
CLEVELAND

Sahli,[1] following the introduction of omnopon, expressed the opinion that the combination of the alkaloids of opium produced a stronger and more rapid action than morphine. Winternitz [2] administered large dosages of the residual alkaloids to man, and although he was able to produce narcosis without undesirable side actions concluded that morphine was quite superior if analgesia was required. Macht and his associates,[3] after an extensive study of the responses of man to graded electrical stimuli before and after the administration of a series of the opium alkaloids, reported that the order of analgesic power was morphine > papaverine > codeine > narcotine > and thebaine. Codeine was reported as quite inferior to either morphine or papaverine. Narcotine alone produced an initial hypersensitiveness which was followed by a slight analgesia. Nevertheless, combinations of narcotine and morphine (narcophine) were said to produce a better analgesia than did the morphine contained in the combination. Möhrke, in 1921, likewise reported that narcotine potentiated the analgesic action of morphine. Such claims in relation to narcotine have been confirmed and contradicted both clinically and experimentally. Proof of the greater analgesic properties of such preparations as pantopon or narcophine as compared with morphine rests on a very insecure basis, and it is quite suggestive, as stated by Sollmann in 1926, that the clinical dosages of narcophine, pantopon and morphine are almost exactly equivalent as to their morphine content.

An opportunity of investigating this problem objectively and quantitatively is offered by the persistent restlessness of rats when tied back down to an animal board. After a period of from fifteen to twenty minutes they become partially reconciled or convinced of their inability to escape, but the discomfort, anxiety and natural restiveness are reflected by periodic muscular movements in complete absence of noise or other exciting causes. Records obtained over a period of from two to three hours at wide intervals are quite constant, and no evidence of the training effects of this procedure was obtained. This animal, because of the constancy of its reactions, should serve as an excellent test object for the study of sedatives.

The marked tranquilizing action of morphine, as illustrated in figure 1, on the muscular movements or activity of rats under these conditions was used as a basis for comparing the sedative effects of a series of narcotic alkaloids under standard conditions which were comparable in certain respects to clinical conditions in which morphine is indicated. The restlessness ensuing from the enduring discomfort of the position and restraint is closely analogous to a wide range of distressful conditions against which morphine is used therapeutically, including pain, apprehension, dyspnea and cough.

METHODS

Normal adult albino rats were used in all experiments. The animals were tied in a supine position to small padded boards having the general contour of the body and fitted with a head guard consisting of a short length of brass tubing attached to an adjustable base. This guard extended over the head and neck, to the sternum, and although free movement of the head was possible, the animals were unable to injure themselves in attempts to free their legs from the thongs.

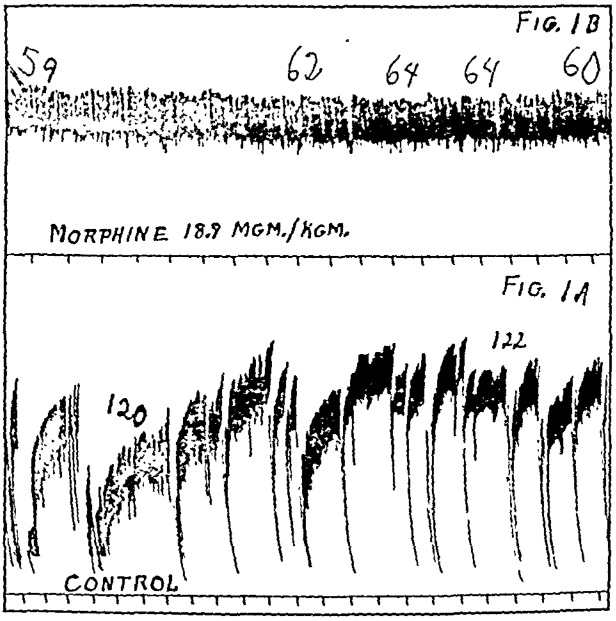


Fig. 1.—*A*, the respiratory (upstroke of lever indicates an inspiratory movement) and muscular movements of a normal rat when tied in a supine position. The time is in minutes. The respiratory rate per minute is indicated by the numerals above the tracing. *B*, the tranquilizing effect of morphine in a dosage of 18.9 mg. per kilogram (4.5 per cent of the minimum lethal dose) on the respiration and spontaneous movements of the same rat.

Graphic records of the respiratory and spontaneous muscular movements were obtained through the medium of a light lever connected with the skin just below the xiphoid process by means of a thread and a small bulldog clamp.

In a second series of experiments, the tranquilizing effectiveness of morphine and papaverine (as representative of the phenanthrene and isoquinoline groups of the opium derivatives) on the spontaneous movements was compared with that on the reinforced or painful reactions of the same animal when stimulated continuously by means of a subtetanic faradic current. Fine copper wire electrodes were wound around each hind foot and wet contacts maintained by covering the electrodes with cotton saturated with saline solution. Movements were recorded graphically from one (usually the left) of the hind feet by connecting the lever to one of the toes. Control records were obtained before and during stimulation. The stimuli were then discontinued

---

From the Department of Pharmacology of the Western Reserve University School of Medicine.

This study was aided in part by a grant from the Therapeutic Research Committee of the American Medical Association. The pantopon used was furnished by the Hoffmann-La Roche Company.

[1] Sahli, H.: München. med. Wchnschr. **57:** 1326, 1910.

[2] Winternitz, H.: München. med. Wchnschr. **59:** 853, 1912.

[3] Macht, D. I.; Johnson, S. L., and Bollinger, H. J.: J. Pharmacol. & Exper. Therap. **8:** 451 (Aug.) 1916. Macht, D. I.; Herman, N. B., and Levy, C. S.: Ibid. **8:** 1, 1916.

and the drug was administered. Sixty minutes later the procedures carried out during the control period were repeated.

The alkaloidal salts tested were dissolved in distilled water and the concentration adjusted so that the volume administered (subcutaneously) was relatively constant. The agents were compared as to equivalence with the morphine base over a range of dosages varying from 0.5 to 15 per cent of the minimum lethal dosage of morphine. Rest periods of from nine to twelve days intervened between successive experiments on individual animals to obviate the development of tolerance.

A series of from seven to fifteen rats were tested with each dosage of each of the alkaloids and pantopon. The average number of movements per minute over a period of from five to ten minutes were counted before, and again from sixty to eighty minutes after, medication. The median of the data for each series was obtained and the results were expressed in figures as percentages of the control activity.

RESULTS

Morphine.—The sedative effects of morphine were apparent with the minimal dosage tested (fig. 2 *A*). Movements were reduced 25 per cent with 2.1 mg. per kilogram of body weight. The degree of tranquilization increased with the dosage and was complete following the administration of from 19 to 21 mg. per kilogram. Such dosages are equivalent to from 4.5 to 5 per cent of the minimum lethal dosage (0.42 Gm. per kilogram) for the rat and in this respect correspond to a dosage of 15 mg., or one-fourth grain, for man.

Codeine.—The tranquilizing efficiency of codeine differs distinctly from that of morphine (fig. 2 *B*), although the form of the dosage curve is quite similar (in contrast to narcotine and papaverine, as illustrated in fig. 2 *C* and *D*). Twenty-one milligrams of codeine per kilogram of body weight reduced the spontaneous movements less than 10 per cent, while an equal quantity of morphine was completely sedative. The minimal tranquilizing dose of codeine (63 mg. per kilogram) was three times that of an equally effective dosage of morphine. However, 42 mg. of codeine per kilogram was 80 per cent sedative or, in other words, the near complete tranquilizing efficiency was only slightly less than one-half that of morphine. The potency relation therefore seems to vary somewhat with the degree of effect sought; i. e., codeine : morphine : : 1 : 2 or 3.

Narcotine.—Dosages of narcotine ranging from 4.2 to 126 mg. per kilogram were tested (fig. 2 *C*). No evidence of increased excitability was obtained over this range. The sedative effects noted were more variable and smaller in degree than with any of the other agents tested. The tranquilizing action was observed with the minimal dosage tested, but the rate of movement was reduced only approximately one third by the maximal dosage. The sedative efficiency of narcotine is probably less than one-fifteenth that of morphine. In dosages greater than the maximum indicated in the figure, an increased reflex excitability occurs so that the efficiency becomes even lower.

Papaverine.—The sedative effects of papaverine were apparent with all dosages tested. The efficiency increased but slightly with dosage and was incomplete even after medication with 126 mg. per kilogram of body weight (fig. 2 *D*). A numerical comparison of the tranquilizing effects of papaverine with those of morphine indicate that, on a weight basis, the one-half sedative efficiency of the former is approximately one-fifth, but for complete tranquilization the efficiency is considerably less than one-sixth that of morphine.

Pantopon.—The sedative effects of pantopon were compared with those of morphine on the basis of weight, therapeutic and actual morphine equivalence.

On the basis of weight, pantopon was one half as effective as morphine; i. e., a complete sedative action required 21 mg. of morphine or 42 mg. of pantopon per kilogram of body weight (fig. 3). On the basis of the advertised clinical or therapeutic equivalence, pantopon was less effective than morphine; i. e., the dosage of pantopon required for complete tranquilization was approximately 20 per cent greater than that usually accepted as being equally effective with morphine. This difference is exactly that which exists between the morphine content of a unit dosage of morphine and the corresponding therapeutic dosage of pantopon. No evidence was obtained that would indicate any significant activity on the part of the residual opium alkaloids contained in pantopon.

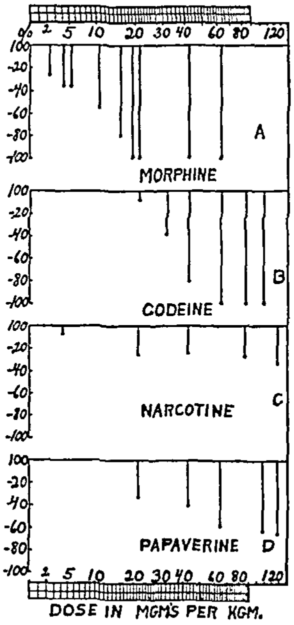


Figure 2

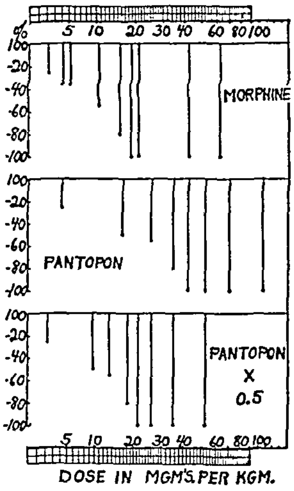


Figure 3

Figs. 2 and 3.—The data have been graphed on a semilogarithmic scale. The abscissas represent the dosages (subcutaneous) per kilogram of body weight. The ordinates represent the number of movements per minute in terms of percentage of the normal rate observed before medication.

COMPARISON OF THE TRANQUILIZING ACTIONS OF MORPHINE AND PAPAVERINE ON THE VOLUNTARY AND INVOLUNTARY MOVEMENTS OF THE RAT

Observations on the tranquilizing actions of morphine or papaverine on the "reinforced" or pain movements which occur during a constant stimulation of the legs of the rat by means of a subtetanic faradic current as well as on the spontaneous movements of the same animal in the absence of stimulation indicated no remarkable difference between the reactions to unit dosages of the two alkaloids under the two experimental conditions.

The reactions of the animals that were stimulated differed somewhat from those of the nonstimulated series, in that the continuous stimulation of the normal animal resulted in greater muscular activity (about five times normal) than occurred spontaneously in the absence of stimulation. Nevertheless, both the spontaneous and the "reinforced" movements disappeared after proper medication. Under such conditions, subnormal movements reappeared temporarily on beginning the stimulation but disappeared after from one to five minutes.

From the standpoint of simplicity as well as regularity of reactions on the part of the rats, the comparison of the spontaneous movements appear superior to that of the reinforced or pain reactions to electrical stimuli for studying the relative tranquilizing effectiveness of narcotics.

CONCLUSIONS

1. The depressant effects of pantopon and the several alkaloids on the spontaneous movements of the rat indicate that the sedative action of the series has the following order, from high to low: morphine > pantopon > codeine > papaverine > narcotine.

2. Morphine, pantopon and codeine in suitable dosages completely inhibited the spontaneous movements of the rat. Papaverine was only 50 per cent effective, while narcotine was practically ineffective. The dosage required for complete tranquilization as compared with morphine = 1; pantopon = 2, and codeine = 3. Papaverine or narcotine in dosages six times that of morphine (126 mg. per kilogram) produced only partial tranquilization; i. e., one half or less.

3. The sedative action of pantopon appears to be due solely to its morphine content.

2109 Adelbert Road.

CARBON TETRACHLORIDE POISONING

L. W. McGUIRE, M.D.
BOSTON

Carbon tetrachloride is used in industry as a solvent for gums, resins and fats; it is used as a dry cleanser and is a constituent of some of the rubber elements; it is used also to clean oil from machinery and, under the name of pyrene, as a fire extinguisher.[1] In medicine it is used as a vermifuge in the treatment of ankylostomiasis. Cases of poisoning have been reported from time to time. I have recently observed seven men who were affected by it, simultaneously, in a small plant where it was used as a solvent for cleaning.

Carbon tetrachloride (CCl_4) is a colorless, transparent liquid, like chloroform. It is insoluble in water and glycerin and is miscible with chloroform, alcohol and benzene. It is soluble in all fixed and volatile oils. It is volatile at ordinary temperatures but noninflammable.

Investigations as to the toxicity of carbon tetrachloride compared to chloroform have varied. Some investigators have reported it twice as toxic, and others about equally toxic.

It has been shown at the research laboratory of the bureau of mines[2] that, when carbon tetrachloride fire extinguishers are used in a closed room, subjected to high temperature such as would occur in a fire, deadly gases are formed. Phosgene gas, which is intensely poisonous, was formed in toxic quantities; chlorine in smaller amounts; hydrogen chloride also was formed, and there was considerable vapor of carbon tetrachloride. The experiments showed that it is extremely hazardous to employ carbon tetrachloride fire extinguishers on a hot fire in closely confined spaces.

Carbon tetrachloride, when used as a vermifuge, is not devoid of danger, especially in debilitated persons, persons addicted to alcohol, and those suffering from chronic cardiac, renal, hepatic and pulmonary diseases. Occasional poisonings have been reported, when used in therapeutic doses. Individual susceptibility plays a part.

Experimental work on dogs, by Minot and Cutler,[3] has shown that even in very large doses it did not produce an intoxication when the dogs were on a well balanced diet, that a comparatively small dose of the drug could produce fatal poisoning on a diet in which calcium was deficient, and also that cases of intoxication could usually be successfully treated by calcium therapy. They found that, on giving dogs from 3 to 4 cc. of carbon tetrachloride, per kilogram of body weight, made susceptible by a preliminary diet of lean meat without extra calcium, they usually had the following symptoms: In from fifteen to twenty hours there was slight malaise, some salivation and nausea, poor appetite, and diarrhea. After twenty hours the dogs became definitely ill and refused to move; there were some fibrillating tremors and visible twitchings of the paws and lips. Violent convulsions are sometimes seen; a foul, bloody diarrhea, with vomiting of changed or fresh blood, frequently occurs. They may go on to coma or profound weakness; death occurs in from forty-eight to sixty hours. The blood showed a hypoglycemia, with a retention of guanidine. The most obvious damage was in the liver. At autopsy, the liver appeared yellowish and was soft and friable. The gastro-intestinal tract usually contained old blood, with hemorrhagic areas in the pyloric end of the stomach and in the upper third of the small intestine. There is often some congestion noted in the kidneys. They also found that there was increased toxicity of carbon tetrachloride if alcohol was added to the diet.

They found that dogs poisoned by carbon tetrachloride could be successfully treated by intravenous injections of calcium chloride; that they would respond in from a few minutes to half an hour and become temporarily fairly normal, and that most cases could be permanently cured by a suitable course of calcium therapy. Calcium lactate could be given by mouth, if vomiting was not persistent. Ammonium chloride and hydrochloric acid were also effective, as well as parathyroid extract. The nervous symptoms were relieved and the blood sugar was restored to normal.

It was found that, by giving dogs a high calcium diet, with calcium lactate, for a period of from one to three weeks previous to administering the carbon tetrachloride, they were relatively immune to fatal poisoning.

In man, the most common symptoms reported in cases of poisoning, when administered as a vermifuge,[4] are nervous and gastro-intestinal irritability, as manifested by nausea, vomiting and diarrhea, accompanied by restlessness and periods of consciousness and unconsciousness, rise of temperature, and icterus due to its action on the liver and its appendages. This is due to fatty degeneration and necrosis of the liver cells, which is similar to that found in chloroform poisoning.

---

[1] Hamilton, Alice: Industrial Poisons in the United States, p. 441.

[2] Fieldner, A. C.; Katz, S. H.; Kinney, S. P., and Longfellow, E. S.: J. Franklin Institute **161**: 543 (Oct.) 1920.

[3] Minot, A. S., and Cutler, J. T.: Guanidine Retention and Calcium Reserve as Antagonistic Factors in Carbon Tetrachloride and Chloroform Poisoning, J. Clin. Investigation **6**: 369 (Dec.) 1928.

[4] Hernandez, A. V.: Carbon Tetrachloride Poisoning, Monthly Bull. Philippine Health Serv. **7**: 567 (Oct.) 1927.

Keher and Onendal[5] reported five fatal cases due to its use as a vermifuge, in the Dutch East Indies. They found, pathologically, destruction of large segments of liver tissue, with pericentral necrosis. All the liver cells in the peripheral portions of the lobules were infiltrated with fat droplets or fat globules. There was an acute venous stasis of the entire portal system, which caused the vomiting of blood, and swelling in the gastric system, with petechia of the visceral serous membranes. There was congestion of the spleen, and degeneration of the renal tissue. Icterus developed in two of these cases. In one of the fatal cases, only 5 cc. was given. In the other four, a repeat dose had been administered. The authors note that users of alcohol were extremely sensitive to this drug.

Mauro[6] reports that the symptoms of poisoning are usually at first irritative phenomena of the eyes and of the throat; then cough, nausea, a sensation of burning in the epigastrium, vomiting, headache, cerebral excitation, and finally narcosis and coma. In cases that are not acute, these symptoms are not marked, and after a few days there may be gastrohepatic symptoms, with icterus.

The seven cases of carbon tetrachloride poisoning that I observed occurred among the employees of a felt manufacturing plant. The patients were all Italians and were wine drinkers. Carbon tetrachloride was used to remove spots from the felt. This method was changed, and instead of using it to remove the individual spot, a large amount, about a 33⅓ per cent mixture of carbon tetrachloride, was placed in the vats through which the felt was passed while the fluid was still warm. This resulted in the outbreak of poisoning, in a few days. The men all complained of nausea and vomiting, which lasted from one to three days. Three vomited small amounts of blood; six had diarrhea; none passed blood that they knew about; five complained of headache; four complained of burning or smarting about the eyes or mouth; two had definite liver enlargement with jaundice; four had evidences of kidney irritation, one of which was an acute nephritis. This man also had bronchopneumonia. All these men have recovered. One of the men with jaundice had an icteric index of 12, two months after the poisoning, the jaundice being entirely cleared. Two months later the icteric index was 4. Two months after exposure the icteric index in the others was normal.

The man with the bronchopneumonia and acute nephritis was critically ill. His symptoms from the onset were more severe. He started with nausea, vomiting and diarrhea. Fever soon developed. On the fourth day there was congestion of the bases. The pulse became elevated and weak; the blood pressure was 182 systolic and 102 diastolic; the white blood cell count was 27,000. The urine showed an acute nephritis and the lungs a widespread bronchopneumonia. He was transferred to a hospital, where his condition became desperate. His face was swollen and his tongue heavily furred; the breath had a urinous odor; he was very restless, continually crying out; his hands were cold and clammy; the pulse was very rapid, weak and irregular; the heart sounds were of poor quality; both bases were flat on percussion, with râles, squeaks and bubbles throughout both lungs. There was a diffuse, large, almost blotchy, macular rash over the greater part of his body; he was passing very little urine; death seemed certain. Under stimulation of epinephrine, caffeine sodiobenzoate and digitalis, with calcium lactate, he gradually began to improve and finally recovered. Four months after the exposure, he was up and about; his weight was normal, and he looked well. Physical examination at this time was negative. The liver was not enlarged. The icteric index was 5. He still complained of gastric distress and weakness.

CONCLUSIONS

1. Carbon tetrachloride may be, and often is, a serious poison.
2. The liver and the gastro-intestinal tract are the organs most commonly damaged.
3. Calcium deficiency and the use of alcohol render an individual much more susceptible.
4. Calcium therapy is particularly indicated in treatment.

395 Commonwealth Avenue.

---

[5] Keher, J. K. W., and Onendal, A. J. F.: Poisoning with Carbon Tetrachloride, Nederl. tijdschr. v. geneesk. **70:** 746-757 (Aug. 14) 1926.

[6] Mauro, G.: Intoxication Caused by Carbon Tetrachloride, Clin. med. ital. **61:** 192-201 (March-April) 1930.

SUBDURAL HEMATOMA IN INFANTILE SCURVY

REPORT OF CASE WITH REVIEW OF LITERATURE

B. BARRETT GILMAN, M.D.
AND
RADFORD C. TANZER, M.D.
ROCHESTER, N. Y.

The hemorrhagic diathesis of scurvy has been recognized since the time of Hippocrates. Hemorrhage occurs most commonly beneath the periosteum of the long bones and into joint spaces but frequently involves the skin, mucous membranes, orbits and serous cavities. Reports of hemorrhage associated with the meninges during the active scorbutic state are sufficiently rare to deserve note. The occurrence of subdural hemorrhage in a case of infantile scurvy, in which an operation was performed in this hospital, has led us to review the literature for similar cases.

Willis,[1] an English physician, in a treatise on scurvy published in 1668, mentioned the occurrence of intracranial hemorrhage in the course of this disease, an observation that was apparently based on pathologic examinations. Two hundred years later, in 1871, in a review of the pathologic anatomy of scurvy, Hayem[2] presented the first case of hemorrhagic pachymeningitis associated with scurvy.

To Sutherland,[3] however, must be attributed the first accurate clinical and pathologic report of this condition. In 1894 he described the case of a rachitic and scorbutic infant of 14 months who developed one month before death rigidity of the right arm, followed by an intermittent tonic spasm of the muscles of this arm and conjugate deviation of the eyes to the right. At autopsy there was found in the subdural space a dense, fibrinous mass, loosely adherent to the undersurface of the dura. Beneath this lay a layer of "soft, coagulated lymph," which was separated from the first tissue by a dense, white membrane. The spinal canal

---

From the Departments of Pediatrics and Surgery, University of Rochester School of Medicine and Dentistry, and Strong Memorial Hospital.

[1] Willis, T.: In Quo Agitur de Morbis Convulsivis et de Scorbuto, Pathologiae Cerebri et Nervosi Generis Specimen, 1668.

[2] Hayem, M. G.: Note sur l'anatomie pathologique du scorbut, Gaz. Méd. de Paris **26:** 126 (April) 1871.

[3] Sutherland, G. A.: On Hematoma of the Dura Mater Associated with Scurvy in Children, Brain **17:** 27, 1894.

likewise revealed a deposit of soft, reddened gelatinous material lying just beneath the dural covering. The same paper also includes the history of a 2 year old girl who, in addition to the usual picture of scurvy, presented on the second day of admission rigidity of the neck, dilated pupils, deviation of the head and eyes to the left and spasmodic contractions of the muscles of both arms. An autopsy the following day revealed a large blood clot over the superior surfaces of the brain bilaterally. This clot lay between dura and cortex (relation to arachnoid membrane not specified) and stained the surface of the cortex. The extravasation beneath the dura was evidently of some duration, as a considerable degree of organization was present. An additional finding of interest was the appearance of two subcortical hemorrhages, a condition not described elsewhere in the literature.

Several months later, Wallis Ord[4] reported before the London Pathological Society an autopsy record of a case of infantile scurvy, showing an extensive subdural hemorrhage occupying the whole cranial vault. Clinical signs of increased intracranial pressure had not been elicited.

In 1896, Meyer[5] described another true case of pachymeningitis hemorrhagica interna. The patient was an infant, aged 9 months, who presented clinical signs of both rickets and scurvy. No localizing neurologic signs were demonstrated, yet autopsy revealed on the under surface of the dura a fibrinous, hemorrhagic exudate containing localized accumulations of thin, watery fluid. The arachnoidal membrane was edematous, and both lateral ventricles showed slight enlargement.

A case of subdural hemorrhage in the spinal cord was reported by Feigenbaum[6] in 1917. The patient, a German soldier, aged 30, following a month's course of typical scurvy developed the signs of a transverse cord lesion of marked degree. Under adequate diet the external bleeding stopped, but neurologic signs showed no tendency to regress and the patient eventually died of sepsis. At autopsy a flat, partially organized subdural hemorrhage was discovered anterior to the cord, extending from the sixth to the tenth thoracic segment. There was also an extensive hematoma lying between the nerve roots in the subarachnoid space. Microscopic examination showed various stages of organization of a blood clot. The last two cases more nearly simulate the entity described by Virchow as pachymeningitis hemorrhagica interna than any of the other descriptions recorded here.

The last reported case of subdural hematoma was offered by Sammis[7] in 1919, occurring in a malnourished infant of 1 year, with unmistakable signs of rickets and scurvy. A general clonic convulsion was followed by death four hours later. Autopsy revealed a blood clot over the left postcentral gyrus, lying definitely between dura and arachnoid.

In addition to these seven recorded cases of subdural hemorrhage, we have found three reports of extradural bleeding in scurvy. Möller[8] in 1862 described a large extradural clot causing marked compression of the underlying cortex. The dura at this point was definitely thickened and displayed increased vascularity. Two similar cases were given by Sato and Nambu[9] in 1908 and by Glauber[10] in 1928.

Scherer[11] in 1913 reported thirteen autopsy records obtained within the course of a few months on young adults with scurvy, whose ages ranged from 20 to 25 years. Twenty-five per cent of the examinations revealed intracranial hemorrhage of one type or another. In none of the cases was there any evidence of trauma or of inflammatory change which might be considered of etiologic significance. The report did not include the relationship of the hemorrhages to the meninges but, judging from the description, they were probably extradural.

Several other contributions have been found presenting patients whose clinical picture suggested the presence of hemorrhage with pressure on the brain or cord. These cases lacked pathologic or operative confirmation. The American Pediatric Society's collective investigation of infantile scurvy in 1898[12] embodied a thorough study of 379 cases with 29 deaths. Cerebral hemorrhage was given as the cause of death, based on clinical evidence, in three cases. None of the six cases that went to autopsy showed any cerebral or spinal lesions. Hess and Fish[13] in 1914 mentioned a case under their care in which, during the course of the disease, twitchings of the muscles, convulsions and urinary bleeding developed. A lumbar puncture showed a blood-tinged spinal fluid, but no further evidence of the site of the blood clot or localized accumulation of fluid producing symptoms was to be had.

Von Noorden[14] in 1889 and Prakken[15] in 1925 each reported a case of scurvy characterized by the onset of neurologic signs of pressure on the spinal cord and disappearance under antiscorbutic treatment. Hemorrhage about the cord, though strongly suspected in both cases, was not definitely proved.

The cases herein reported indicate that cerebral complications in scurvy are unusual but by no means unknown. The 25 per cent incidence in Scherer's small group is surprising and not confirmed by other series. The most extensive collection of autopsies on scorbutic children which we have found is that of Sheldon,[16] numbering nineteen, in which no instance of intracranial bleeding was encountered.

Our case adds one more to the list of seven proved cases of subdural hemorrhage in scurvy, and it possesses the additional interest of being the first reported case in which the diagnosis has been confirmed by operation.

REPORT OF CASE

History.—E. M., an American boy, aged 16 months, was brought to the Strong Memorial Hospital, July 10, 1931, because of irritability and loss of appetite.

The patient was born spontaneously in the seventh month of pregnancy. The birth weight was 4½ pounds (2,041 Gm.). Breast milk was given for two months, followed by a sweetened formula of diluted pasteurized cow's milk for ten months. Whole milk was introduced during the four months prior to entry Cod liver oil had been given daily since early infancy Orange juice and tomato juice were given on an average of once a month because their more frequent use was associated with a recurring diarrhea Cereals and vegetables were not taken The general nutrition was considered consistently poor

---

[4] Ord, Wallis: Proceedings of the Pathological Society of London, Brit. M. J. **2:** 1430 (Dec.) 1894.

[5] Meyer, E.: Ueber Barlowsche Krankheit, Arch. f. Kinderh. **20:** 202, 1896.

[6] Feigenbaum, D.: Ein Beitrag zur Kenntniss der Rückenmarksblutungen beim Skorbut, Wien. klin. Wchnschr. **30:** 1455 (Nov.) 1917.

[7] Sammis, J. F.: A Case of Scurvy with Cerebral Hemorrhage, Arch. Pediat. **36:** 274 (May) 1919.

[8] Möller: Zwei Fälle von akuter Rachitis, Königsberg. med. Jahrb., 1862-1864, (3-4), p. 135.

[9] Sato and Nambu: Zur Pathologie und Anatomie des Skorbuts, Virchows Arch. f. path. Anat. **194:** 151 (Oct.) 1908.

[10] Glauber, Richard: Zur sogenannten Pachymeningitis haemorrhagica interna, Monatschr. f. Kinderh. **38:** 293, 1928.

[11] Scherer: Ueber Skorbut in Deutsch Südwest Afrika, Arch. f. Schiffs- u. Tropen-Hyg. **17:** 191 (March) 1913.

[12] American Pediatric Society's Collective Investigation on Infantile Scurvy in North America, Tr. Am. Pediat. Soc. **10:** 5 (June) 1898.

[13] Hess, A. F., and Fish, Mildred: Infantile Scurvy, the Blood, Blood Vessels and Diet, Am. J. Dis. Child. **8:** 385 (Dec.) 1914.

[14] von Noorden: Zur Aetiologie und Pathologie des Scorbuts, Deutsche med. Wchnschr. **15:** 261 (March) 1889.

[15] Prakken, J. H.: Een Geval van Scheurbuik met Ruggemergsbloeding, Nederl. Tijdschr. v. Geneesk. **2:** 1796 (Oct. 17) 1925.

[16] Sheldon, W. P. H.: Intracranial Hemorrhage in Infancy and Childhood, Quart. J. Med. **20:** 353 (July) 1927.

At eleven months he had a bilateral, suppurative otitis media of one week's duration

The father and mother are living and well The Kahn reaction of the parents' blood is negative Two premature siblings are living and well One infant died thirty hours after birth

At 15 months of age, four weeks prior to entry, anorexia and general irritability became pronounced Tenderness of the lower extremities was noted at this time

Examination—The temperature was 37 6 C (99 7 F), the weight was 5 9 Kg (13 pounds) The child was poorly developed, dehydrated and slightly anemic The occiput was flattened and the fontanels were closed A slight bilateral internal strabismus was present The gums were congested A rather angular type of beading at the costochondral junctions was observed There was slight generalized enlargement of the lymph nodes The legs were tender and held in flexion and external rotation The right knee was swollen and painful on motion In other respects the general examination was not abnormal

The red blood cells numbered 4,400,000, hemoglobin was 55 per cent, the white blood cells numbered 12,600 The urine and Wassermann tests were negative Chemical examination of the blood revealed calcium, 10 6, phosphorus, 4 5, magnesium, 1 6 mg per hundred cubic centimeters A roentgen study of the long bones showed the characteristic picture of scurvy

Course—The child took daily from 30 to 90 cc of orange juice with potassium citrate and, for the anemia saccharated ferrous carbonate and copper sulphate During the next week the gums became normal, the extremities lost their tenderness, and roentgen evidence of calcium deposit in the long bones became manifest July 20, ten days after admission the temperature rose to 39 8 C (103 6 F), the white blood cell count was 20 600 and diarrhea occurred Nonprojectile vomiting was frequent during the next three days

July 25, the vomiting became projectile Twitching of the right side of the face and rolling of the eyes was observed, but further neurologic signs were not apparent until two days later, when internal strabismus increased and dilatation of the left pupil occurred Lumbar puncture revealed xanthochromic fluid under a pressure of 400 mm of water The diagnosis of left pachymeningitis hemorrhagica interna or of subarachnoid hemorrhage was made

July 28, a burr hole in the left parietal region was made under local anesthesia The dura appeared to be under moderately increased tension and congested When the dura was incised, about 60 cc of definitely xanthochromic fluid gushed forth The cortex was separated from the overlying dura by approximately one-half inch A drain was inserted to the subdural space and closure effected with silk

Postoperative laboratory studies showed a normal bleeding and clotting time A roentgenogram of the skull gave no evidence of subperiosteal hemorrhage

Following operation the strabismus decreased, the facial twitchings ceased and the patient became more alert The wound drained profusely until the removal of the drain, August 4 At this time the brain cortex was found to be almost flush with the dura Convalescence was delayed by several attacks of vomiting associated with loss of weight Lumbar punctures at intervals showed a gradual return of spinal fluid pressure to normal Following the removal of the drain the cranial wound was tapped daily Xanthochromic fluid was always obtained, at first under increased pressure, but gradually the normal dynamics returned

By the end of August the wound had healed the neurologic examination was normal the hemoglobin, aided by several transfusions had reached 75 per cent, and the patient was steadily gaining weight He was discharged, September 14

Except for a minor gastric disturbance shortly after discharge, the child has continued to improve No further neurologic changes have appeared Jan 6, 1932, when last seen, the internal strabismus was of the same degree as noted on the admission examination Mentally he was much brighter and more alert

SUMMARY

In a case of infantile scurvy, signs of intracranial bleeding developed during the period of hospitalization At operation a subdural sac of xanthochromic fluid was found and drained, with subsequent complete recovery

A review of the literature has revealed thirteen other proved cases of intracranial hemorrhage in scurvy, seven being subdural, three extradural and three unclassifiable Five of the seven cases of subdural bleeding were found in infants or young children

It is hoped that this emphasis will call attention to the possibility of intracranial complications in scurvy and to the advisability of early exploratory operation in cases presenting localizing signs of increased intracranial pressure

Clinical Notes, Suggestions and New Instruments

HEMOPHILIA PREVENTION AND TREATMENT OF BLEEDING WITH OVARIAN EXTRACT

H T Kimm, M D, and C M Van Allen, M D
Peiping, China

Following the announcement by Carroll L Birch[1] of the discovery that a hormonal disturbance exists in hemophilia which is temporarily relieved by parenteral administration of ovarian substances, the opportunity presented itself to us in a case of that disease to test the efficacy of ovarian extract for controlling dangerous spontaneous bleeding and to gather data of possible future assistance for safeguarding against persistently bleeding hemophiliac patients who need surgical operations The potential value to surgery of such clinical applications of Birch's discovery is obvious The data from this case are reported without waiting for more material since the disease is uncommon[2] and prompt standardization of the surgical methods will require that data from many sources be pooled in the literature

Birch gave daily injections of ovarian extract for eight months to one person with hemophilia and abolished the abnormal tendency to bleeding during that period and for two and one-half months afterward A second patient was treated by ovarian extract for one month and then received a graft of fresh human ovary into the anterior abdominal wall Examination of the blood gave normal results for five months Neither the dosage of the extract used nor the details of the effects on blood coagulation were published This investigator showed, furthermore that the urine of hemophilia patients differed from that of normal males by the absence in the former of appreciable amounts of female sex hormone

REPORT OF CASE

History—A Chinese boy, aged 10 years, had been admitted to the hospital twice previously in six years for uncontrolled bleeding from superficial abrasions The bleeding was stopped each time with great difficulty, chiefly by transfusions of whole blood but only after development of severe degrees of exsanguination The diagnosis of hemophilia was made from these symptoms and from the laboratory observations of marked delay in clotting time and clot retraction time, of normal bleeding time and of the normal number of platelets It was supported by the discovery that a younger brother had a similar history Other male members of the family could not be secured for examination A point of interest, which has

---

From the Department of Surgery, Peiping Union Medical College

[1] Birch C L Hemophilia Proc Soc Exper Biol & Med 28:752 (April) 1931, Hemophilia and Female Sex Hormone, Preliminary Report, J A M A 97:244 (July 25) 1931

[2] Only two other cases have been seen in this clinic in ten years

been the subject of another report,[3] was that two years previously the patient received a blow on the flexor muscles of the right forearm and developed an intramuscular hemorrhage that led to a Volkmann's contracture. Three days prior to the present admission of the patient, he fell and scratched the lower lip, whereupon bleeding commenced and continued without interruption.

The boy was normally nourished and developed, but pale and weak. The lower lip was slightly swollen and presented a small slowly bleeding ulcer in the mucous membrane near the margin. The only other physical abnormalities were a faint systolic murmur over the heart and the Volkmann's contracture. The erythrocyte count was 2.7 millions, and the hemoglobin estimation (Sahli) 50 per cent. Since the diagnosis was already known and treatment was needed primarily, further blood tests were postponed.

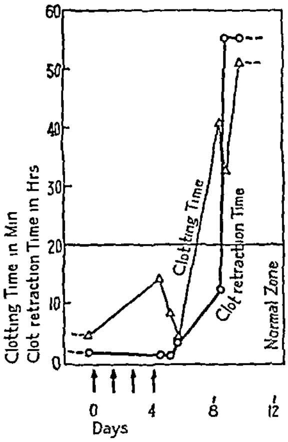


Chart 1.—Effects on blood coagulation of repeated intramuscular injections, once daily, of 4 grains (0.26 Gm.) of ovarian extract. Here, as in the other charts, arrows indicate the time of the injections.

Treatment.—An intramuscular injection of 4 grains (0.26 Gm.) of ovarian extract[4] was given at once. The bleeding became less rapid but failed to stop, and the injection was repeated at twelve hours. Bleeding ceased at fourteen hours but returned at twenty-four hours. A third injection at that time was followed in thirty minutes by permanent cessation of bleeding. One injection was then given every twenty-four hours for the next six days, and the ulcer healed rapidly. A dry dressing to protect the ulcer and routine nursing care constituted the only other forms of treatment. During the last four days of injections and the following six days, the blood was tested repeatedly for clotting time and clot retraction time.[5] The readings are given in chart 1. They were normal during the period of the injections and two days afterward. Four days after stopping the treatment the clotting time was prolonged to forty minutes, whereas the clot retraction time was still within the normal range. The day after that, both readings were abnormal, the clotting time being thirty-four minutes and the clot retraction time fifty-four hours. Six days after treatment was discontinued, both readings had assumed the high levels, i. e., fifty minutes for clotting time and fifty-four hours for clot retraction time, which proved to be natural to the patient. It was found from repeated tests during the fourteen days of rest that followed that the bleeding time[6] and platelet count[7] were normal, while the fragility of the platelets[8] was greatly decreased.

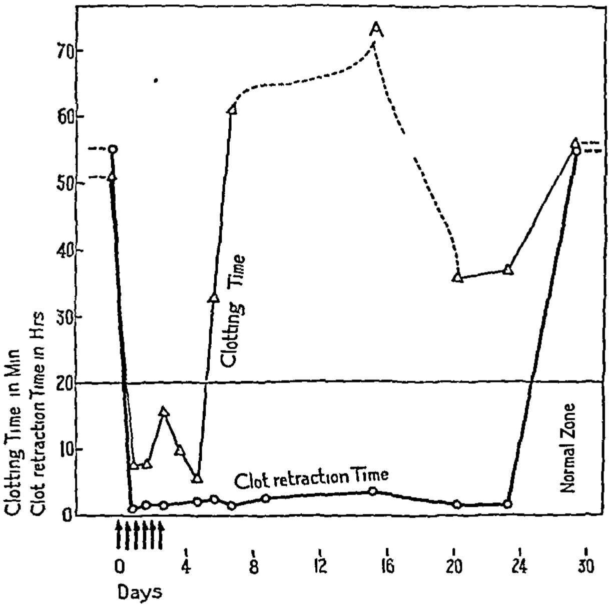


Chart 2.—Effects of repeated injections: twice daily, of 4 grains of ovarian extract. *A* represents 140 minutes.

Experiments in Prophylaxis.—After this the patient was without symptoms and largely recovered from anemia. He was induced to remain six weeks longer for the performance of three more tests as to the effects of intramuscular injections of ovarian extract. Other dosages than the dosage already given were used, and the experiments were separated by intervals sufficiently long to allow between the tests the blood to return to its natural state of coagulability, any probable accumulation of ovarian extract in the system to leave, and the punctured superficial veins to heal. The boy's veins were difficult of approach by needle at best, and phlebotomy was not justified, so the examinations had to be limited in frequency and confined to the more important considerations, namely, clotting time and clot retraction time. The results of the tests were as follows:

1. Six 4-grain doses were *given twice daily (chart 2)*. Before injection, the clotting time was fifty-one minutes and the clot retraction time was fifty-five hours. The next day, just before the third injection, both readings were well within the normal zone. The clotting time remained normal through the first five days, which was two days longer than the treatment lasted, then rose rapidly and reached approximately the initial level in two days. Readings were omitted after that until the fifteenth day, when the clotting time was more than twice as long as at first. This was followed by a swing back to points somewhat below the initial level and then by a swing up to the initial level. The clot retraction time remained normal throughout the period of treatment and for twenty days afterward. On the twenty-ninth day, it stood at the initial level.

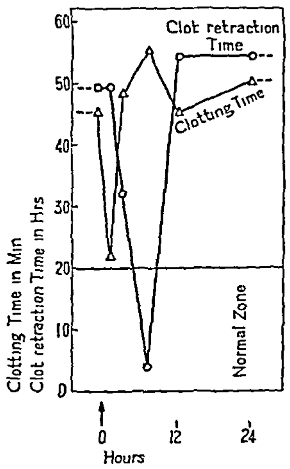


Chart 3.—Effects of one isolated injection of 4 grains of ovarian extract.

2. One isolated 4-grain dose was given (chart 3). Before injection, the clotting time was forty-five minutes and the clot retraction time, forty-nine hours. One hour after injection, the clotting time was twenty-two minutes, which was just above the normal zone, but the clot retraction time was unaltered. Then the value of the first function began to rise and that of the second to drop, until at seven hours they were fifty-five minutes and four hours, respectively, the first being distinctly above its initial level and the second being within the normal zone. At twelve and twenty-four hours, both values stood approximately at their initial levels.

3. One isolated 8-grain (0.5 Gm.) dose was given (chart 4). To begin with, the clotting time was sixty-five minutes, and the retraction time, thirty-six hours. One hour after injection the first value was slightly lower but still markedly abnormal, while the second was well within the normal zone. Practically the same values were found to exist for the next thirty-five hours. At sixty hours, the clotting was approximately at the

---

[3] Shih, H. E.: Volkmann's Contracture with Report of Case, Nat. M. J. China 17: 315-322 (June) 1931.

[4] 'Azoule,' prepared by Allen & Hanbury, Ltd., London.

[5] Lee, R., and White, P. A.: A Clinical Study of the Coagulation Time of Blood, Am. J. M. Sc. 145: 495, 1913.

[6] Duke, W.: quoted from Morris, R.: Clinical and Laboratory Diagnosis, New York, D. Appleton and Company, 1924, p. 276.

[7] Reiman, H. A.: The Blood Platelets in Pneumococcus Infections, J. Exper. Med. 40: 553 (Oct.) 1924.

[8] Birch (footnote 1, first reference).

initial level, but the clot retraction time was still normal. At seventy-two hours, both readings had returned approximately to their initial levels.

CONCLUSIONS

Because venipuncture could not be done as often as required, the exact duration and extent of the effects of the injections on blood coagulability were not determined, but certain general influences were discerned:

1. Repeated intramuscular injections of ovarian extract influenced profoundly the coagulability of the blood of this hemophiliac patient; they stopped a hitherto uncontrolled and severe hemorrhage and they reduced the laboratory readings of blood coagulability to normal.

2. Isolated injections had definite but incomplete effects. At least two doses spaced from twelve to twenty-four hours apart were required to bring the laboratory readings to normal, and three doses in a period of twenty-four hours were necessary for permanent control of spontaneous bleeding. This suggested an accumulative action of the drug.

3. The effects of an isolated dose of 4 grains were practically the same in magnitude as those of one of 8 grains; the effects of a series of injections with 4 grains given once daily were the same in magnitude as those of a series with 4 grains twice daily. This was true of both clotting time and clot retraction time.

4. The effects of both isolated and repeated injections were maintained for some time after treatment was stopped, and they tended to be followed by a brief period with coagulation delayed longer than natural, before the coagulation returned to the natural state. The effects were maintained longer in respect to clot retraction time than to clotting time, after 8 grains than after 4 grains, and after twice daily than after once daily doses.

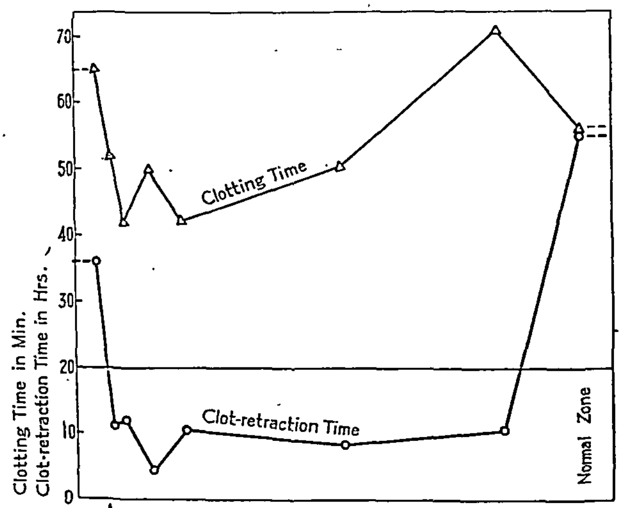


Chart 4.—Effects of one isolated injection of 8 grains of ovarian extract.

5. Experience with many more cases is required before the treatment and prophylaxis of bleeding in hemophilia can be standardized, but until this is at hand the following suggestions are made: Treatment may consist in intramuscular injections of 4 grains, begun immediately and continued at intervals of six hours until bleeding stops, and then at intervals of twenty-four hours until the wound is healed. The wound should receive the ordinary surgical care. Patients may be prepared for surgical operations by three injections, each of 4 grains of extract, the first being given twenty-four hours, the second twelve hours, and the third two hours before operation. If time permits, it might be better to give daily injections of 4 grains for two or three days before the operation, in addition to one injection two hours before operation.

SUMMARY

In a case of hemophilia, a prolonged period of spontaneous bleeding was terminated by intramuscular injections of ovarian extract and a series of experiments was performed to determine the effects of various doses of ovarian extract on the coagulability of the blood. The data obtained provided information of possible value in developing standard methods for prevention and treatment of persistent bleeding in this disease —bleeding that occurs from either accidental or surgical wounds.

OBSERVATIONS ON A PATIENT TO WHOM SPINAL ANESTHESIA WAS ADMINISTERED FIVE TIMES WITHIN THIRTY-EIGHT HOURS

William M. Sullivan, Jr., M.D., New York

The history reported here illustrates many interesting points in urinary physiology and suggests that spinal anesthesia, even though frequently repeated, is harmful only in proportion to the lack of skill of the anesthetist. The urologic history is long and has been greatly condensed.

R. M., a man born in 1891, a railroad employee, had hematuria and attacks of colic in the right loin for four years when, in 1922, the right kidney was removed. It was said to contain a large stone. The following year he had a urethral discharge, which continued until 1928. An abscess discharged through the perineum. In 1929 he was first seen by Dr. Keyes and operated on twice under spinal anesthesia (procaine hydrochloride) at a four weeks interval for urethral stricture and perineal abscess. Both lesions were relieved, though the perineum, after healing promptly and almost completely, still showed a pin hole fistula in the summer of 1930. Since that time many urethral instruments have been passed without encountering any obstruction and there has been no bladder retention of urine. The urethral and prostatic history has no bearing on the points under discussion.

In August, 1929, however, after brief pain in the left loin, he had anuria for twenty hours. The plain roentgenogram was negative, the pyelogram inconclusive as to the presence of stone and a normal kidney pelvis, but a number 6 ureteral catheter at 25 cm. up the left ureter passed a definite obstruction and drew 10 cc. of pus and urine.

An indwelling ureteral catheter was left for twenty-four hours. When this ceased to function the catheter was withdrawn and anuria recurred. Twelve hours later a vain attempt was made to reinsert the ureteral catheter into the kidney pelvis, and under spinal anesthesia (procaine hydrochloride) the left kidney pelvis was opened and a small urate stone milked upward from a point about 2 cm. down the ureter. There were many soft adhesions around the kidney at this time. The loin wound healed in twenty days.

In June, 1930, the renal symptoms recurred; and although a roentgenogram then was negative and the ureteral catheter drew clear urine which contained only scattered pus cells and detected no retention in the kidney pelvis, a month later phosphatic stones were visible to x-rays and by September had grown to fill the kidney pelvis.

With the growth of the stone the phenolsulphonphthalein output diminished from 25 per cent in thirty minutes after intravenous injection in June to 12 per cent in September. It has remained low since that time, varying from 8 per cent in September, 1931, to one count of 20 per cent in March of the same year. But during 1930, the nonprotein nitrogen of the blood remained approximately 40 Gm. per hundred cubic centimeters.

In view of the difficulty anticipated in reoperating on the left kidney and with the prospect of recurrence of renal stone, operation was deferred although the patient was becoming more and more incapacitated by irregular fever due to pyelonephritis and occasionally accentuated by left epididymitis and was bleeding from the kidney a good part of the time.

His chief complaint, however, was the great pain and frequency of urination. When this increased to every hour he was put in the hospital, in October, 1931, and bladder decompression was established. Within a week the bladder spasms were relieved but within a month they had recurred.

Nov. 12, 1931, therefore, he returned to the hospital worn out with pain, urinating three or four times an hour, usually with spasm, and passing urine which usually was bloody. Though his condition was considered desperate it is to be noted that from his normal weight of 170 pounds (77 Kg.) he had lost only 10 pounds (4.5 Kg.) and the nonprotein nitrogen, though it had been as high as 72 in September, was only 56 in October and 64 on entrance to the hospital.

For three days, bladder decompression was attempted in vain. Spasms in the bladder and hematuria were constant. In order to relieve the patient of his incessant pain, nephrotomy was done on the left kidney under nupercaine spinal anesthesia, December 15. The kidney was embedded in such extremely dense adhesions that the better part of an hour was spent in freeing its lower pole and opening into the lowest calix and removing a phosphatic stone from this. But the hilus had not been disclosed, nor the kidney pelvis, and the neck of the calix could not be found because of bleeding from the parenchyma. Therefore, no further attempt was made to extract the stone, and the operation was completed by suturing a small tube into the lower calix.

During the ensuing week the nonprotein nitrogen rose to 54, and the creatinine to 2.77, on the fifth day the patient was semicomatose but revived after an intravenous injection of dextrose. The urinary flow varied, sometimes chiefly from the loin, sometimes chiefly from the bladder. Hematuria was mild, the patient quite comfortable. The indwelling catheter was continued.

At 8 p. m., December 22, strangury returned and the bladder filled with clot. Nupercaine spinal anesthesia relieved the pain, and the clots were emptied out. This relief lasted but five hours, when the strangury recurred and a second spinal anesthesia again relieved this. A litholapaxy tube was introduced and no clots were obtained. This second spinal anesthesia gave relief for fourteen hours, at which time the pain again recurred and the third spinal anesthesia was given, which relieved him for eleven hours; then a fourth, which relieved him for six hours; then a fifth, at which time the bladder was opened suprapubically and a large quantity of blood clot emptied out of the bladder.

At this fifth spinal anesthesia within thirty-eight hours, the blood pressure before anesthesia at 11:20 a. m. was 122 systolic and 72 diastolic; after spinal anesthesia at 11:35 it was 120 systolic and 60 diastolic. It then rose at 11:40, as a result of the prespinal ephedrine, to 160/90 and the readings every ten minutes thereafter were 146/88, 152/82, 160/90 and 150/80 (at 12:20 p. m.). At 1 o'clock it was 140/70, at 1:30 it was 112/62 (pulse 120) and at 4:30 it was 108/40. The patient thereafter was entirely comfortable and suffered no inconvenience at any time from the spinal anesthesias. The spinal fluid cell count at the last anesthesia was 40, white and red cells mixed. The globulin showed a slight increase.

The patient made a rapid recovery; the loin wound healed. The suprapubic tube has remained in place and the urine has shown blood, but once the chemical examination of the blood has given normal results. December 29, Dr. Sheehan did a complete neurologic examination and was unable to find any reflex, sensory or other changes.

In March, 1932, the patient stated that he felt better than he had at any time in the last three years. He has not attempted to do any work.

COMMENT

1. Spinal anesthesia is used from time to time for the relief of acute ureteral or intestinal obstructions. The history given is contributed as evidence that it may be practicable to repeat the spinal anesthesia a number of times at short intervals without appreciable harm to the patient.

As stated at the beginning of this paper, the harm done by spinal anesthesia is probably proportionate to the lack of skill of the anesthetist.

2. The pathologic physiology of bladder and of renal retention and the relief of symptoms by splinting the bladder or by releasing insignificant obstructions is illustrated in many departments of urinary surgery. Thus, most treatments applied to the urethra or the ureter seem to owe their efficacy to mechanical rather than to chemical qualities. The striking and commonplace examples of this are the cutting of the urethral meatus to secure adequate drainage for the cure of chronic urethritis and the passage of the ureteral catheter to relieve infection of the kidney pelvis.

The case cited illustrates the adequacy of suprapubic drainage to relieve an intolerable situation. Repeated observations had shown that the bladder emptied itself always down to a few cubic centimeters. Under such circumstances and in the absence of bladder lesions, as certified by cystoscopy, there seemed every reason to believe that the repeated hemorrhages came from the kidney pelvis and that when the bladder splint (decompression), which had once subdued the symptoms for a short while, failed on a second trial the only hope of relief would be nephrostomy. Yet the event proved that, probably because the drainage by an indwelling ureteral catheter never quite kept pace with the hemorrhage, the suprapubic tube was required to abate the symptoms.

3. The patient is delighted, though not well. No great regret is felt that at the last operation on the kidney the stone was not all removed, for it surely would have recurred. From experience with similar cases in the experience of Dr. Keyes, it seems quite possible that the patient has a great expectation of life on condition that his physical exertions are somewhat restricted. The kidney is full of stone but its parenchyma is considerable in quantity and adequate in function. The stone has already set in such a way as to fill the pelvis and calices. It will be interesting to observe whether the little difference in facility of drainage through the suprapubic tube as compared to the urethra insures him for the future against the bleeding from which he has suffered so much in the past.

327 East Sixtieth Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.
H. A. CARTER, Secretary.

CARRIER PORTABLE ROOM COOLER ACCEPTABLE

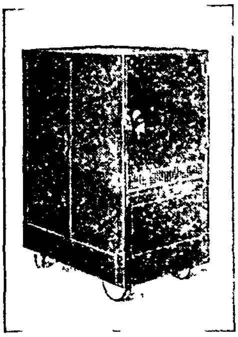
The Carrier Portable Room Cooler is manufactured by the Carrier-York Corporation, Philadelphia. Its purpose is to reduce the temperature of a hospital, a home or an office room to comfortable summer temperatures. It consists essentially of a cabinet resembling an ice chest and is equipped with two small motor driven air blowers designed to draw the room air by and in the presence of melting ice. No difficult installation is required; merely charge the cooler with ice, connect the cord to a source of current, and it is ready for use.

Externally, it looks like a piece of furniture and is usually finished in walnut grain or in ivory. The cabinet is 37⅝ inches long and 24⅝ inches wide. Its height is 52 inches and it weighs approximately 400 pounds without ice.

The cabinet is made out of steel, double thickness, and insulated. The insulation is pressed board type approximately one-half inch thick, the purpose of which is to prevent condensation or "sweating" on the outside of the cabinet.

The firm claims that 300 pounds of ice will operate the cooler at full capacity under hot weather conditions for about five hours. Regulation of the louvers on the air discharge will cause the ice to last longer but will cut down on the efficiency. The actual cooling is accomplished by two small blowers drawing the air from the room between the fins of a special metal grid on which the ice rests. The ice melts down between these fins in ridges and the air, coming in contact with the cold grid and the ice, is cooled. This cooled air is then distributed out into the room by means of the same blowers. The quicker the ice melts, the more the cooling. The rate at which the ice is melted determines the capacity of the unit. When the unit is not in operation, i. e., when the fan is not running, the ice in the cabinet melts, it is claimed, at the rate of from 4 to 6 pounds per hour. The manufacturer claims that at an average of 5 pounds per hour, only 50 pounds of ice would melt if the unit stood idle for ten hours.

The Carrier-York Corporation asserts that the cabinet has sufficient capacity to produce a comfortable summer condition in a room having 300 square feet of floor area with a 10 foot ceiling. Thus the room has a volume of 3,000 cubic feet. In larger rooms having unusually bad sun exposure, many electric lights or other equipment giving off heat, and a number of persons present, more than one unit may be required. Under no circumstances can a single unit be expected to cool satisfactorily a room of more than 4,000 cubic feet. Obviously, a ward in a hospital could not be cooled by one unit. Several units would be required.



Carrier Portable Room Cooler.

The cost of operation may be determined by applying to the local ice companies for the rates. Roughly, the rates vary from 20 to 40 cents per hundred pounds. At an average cost of, say, 30 cents per hundred pounds, one loading of 300 pounds would cost 90 cents, and if operated for the average period of, say, ten hours, the cost per hour would be 9 cents.

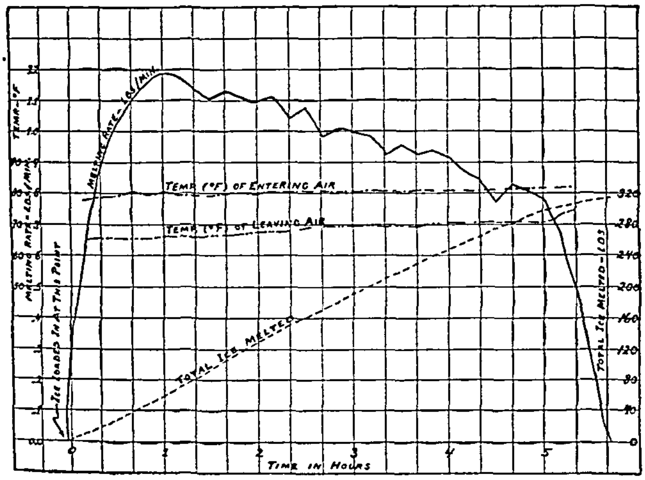
The motor is one-fiftieth horse power. It requires about the same amount of electrical energy to run as a 60 watt lamp. The approximate cost is 0.25 cent per hour.

The performance curve is shown in the accompanying chart. By a Council experiment, the curve was checked to within the limits of experimental error. The Council found that the temperature of the air passing through the unit was reduced from 9 to 12 degrees.

The same test shows that the blowers displaced about 500 cubic feet of air per minute.

A large compartment at the base of the unit affords storage space for the water formed by the melting ice, plus the moisture, which is taken out of the air. Hence the humidity in the room is reduced by the apparatus.

The manufacturer recommends three ways of emptying the water out of the base: First, wheel the cabinet to a floor drain and open the drain valve in the base of the cabinet. Second, use a simple water ejector which attaches to a water faucet and the water is sucked out of the cabinet. Third, use a portable self-contained pump and motor. The two latter accessories are extra and may be purchased from the firm. Usually the services of a janitor are required to empty the melted ice water and recharge the cooler with ice. By far the most convenient method is to allow the cooler to stand in a permanent place and have a regular floor drain installed.



Performance curve.

In a Council test carried out in a room of 2,200 cubic feet, the maximum outside temperature for that day being 90 F., it was found that the temperature in the room after the machine had been in operation for three hours was 77 F. The temperature in the adjoining room at the same time was 85 F. The relative humidity in the adjoining room was about 65 and in the room being cooled about 55. There was 30 square feet of window surface, south exposure. All the rooms surrounding it were not cooled. The occupant of the room stated that he was comfortable while the machine was in operation. There was a marked difference between the temperature in the adjoining room and in the experimental room.

The unit did not cool another room with about 3,344 cubic feet capacity and bad sun exposure, 60 square feet of window surface facing west and the room next to a flat tar paper roof. The company claims that two units would have been required for this room.

The manufacturer believes that the Carrier Portable Room Cooler will serve a therapeutic purpose in a "hospital operating room or dispensary" and that it will "provide comfort in a small individual patient's room either in a hospital or private home."

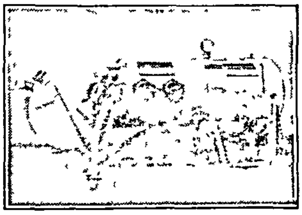
The Council declares the Carrier Portable Room Cooler eligible for inclusion in its list of accepted devices.

EMERSON DIAPHRAGM RESPIRATOR ACCEPTANCE

The Emerson respirator is an apparatus for producing prolonged artificial respiration and is manufactured by J. H. Emerson, 15 Brattle Street, Cambridge, Mass.

The machine is driven by an alternating or a direct current motor but may be operated by hand, if for any reason, such as failure of the current, this should be desired.

The body of the machine is a welded steel cylinder. Four windows made of cellulose acetate, "noninflammable" celluloid, are placed at advantageous points for observing the patient. Five portholes are located below the level of the windows for convenient care of the patient. These are provided with sponge rubber diaphragms, permitting the attendant's arms to be inserted into the respirator without interrupting its action.



Emerson respirator.

Sponge rubber collars supplied with the respirator are thick and flexible, and, according to the manufacturer, are comfortable for the patient. The respirator bed may be raised or lowered to center the patient's neck in the rubber collar. The bed, equipped with a sponge rubber mattress, is flat at all times.

A simple adjustment makes it possible to use either positive and negative pressure or negative pressure alone. The respirator is provided with a low pressure dial gage especially developed for this purpose.

Printed instructions for use and care of the machine are permanently placed in plain view on the side of each respirator.

Variations in pressure within the cylinder are produced by a double, heavy leather diaphragm. This diaphragm may be easily replaced if necessary. The mechanism activating the diaphragm is a standard worm reduction unit operated by a one-fourth horsepower electric motor. An adjustment is provided to vary the respiration rate anywhere between 15 and 35 respirations per minute.

Variation in speed is obtained by moving the motor nearer or farther away from a variable speed pulley; as the motor is drawn away from the pulley, the rubber V belt is pulled down closer to the center of the driven pulley, making it go faster. This variable speed pulley is attached to the shaft of a worm reduction unit (50 to 1), equipped with tapered roller bearings on both shafts. The worm reduction unit in turn drives a walking beam, which pushes the leather diaphragm in and out to create the variations of pressure inside the tank.

Moving parts are in plain view and accessible for care and oiling, and it is claimed that the operation is so simple that any hospital electrician or engineer should be able to understand and care for it.

Furthermore, the firm manufactures an infant model. The infant model is similar in operation to the adult respirator, including the hand operation feature and a small size dial pressure gage.

Additional attachments by the manufacturer have been developed for the adult respirator. An attachment can be supplied to raise the foot end of the respirator a maximum of 30 inches off the floor, giving a substantial tilt to the machine.

Another attachment can be fitted on the head end of the machine for continuing artificial respiration when the main body is opened. This attachment is operated by the respirator motor and therefore the respiration rate of the attachment synchronizes with that of the respirator.

The Council on Physical Therapy declares the Emerson Diaphragm Respirator acceptable for inclusion in the Council's list of acceptable devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

HALIVER OIL WITH VIOSTEROL 250 D-ABBOTT.—Halibut Liver Oil with Viosterol 250 D-Abbott.—Halibut liver oil, adjusted by addition of maize oil to have a vitamin A potency of not less than 30,000 pharmacopeial units (U. S. P. X) per gram, and by addition of a sufficient amount of viosterol in oil 250 D to assure a vitamin D potency of not less than 250 D [250 times that of the standard cod liver oil defined by the Wisconsin Alumni Research Foundation (or 3,333 units [Steenbock] per gram)].

Actions and Uses.—The same as those of cod liver oil (See general article, Cod Liver Oil and Cod Liver Oil Preparations, New and Nonofficial Remedies, 1932, p. 271).

Dosage.—For infants, 8 to 10 drops (3 to 3.5 minims) daily; for premature and rapidly growing infants, 15 drops (5.25 minims) daily; for older children, 15 to 20 drops (5.25 to 7 minims) daily; for adults, especially nursing and expectant mothers, 20 drops (7 minims) or more daily. The marketed preparation is accompanied by a special dropper designed to deliver approximately 3 drops to the minim.

Manufactured by the Abbott Laboratories, North Chicago, Ill. U. S. patent and trademark applied for. The viosterol in oil 250 D used is manufactured under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Soluble Gelatin Capsules Haliver Oil with Viosterol 250 D-Abbott, 3 minims: Each capsule contains 3 minims of haliver oil with viosterol 250 D diluted with 3 minims of vegetable oil.

Haliver oil with viosterol 250 D-Abbott is prepared by combining halibut liver oil, maize oil and viosterol in oil 250 D in such proportions that the finished product will have a vitamin A potency of not less than 30,000 pharmacopeial units (U. S. P. X.) per gram, and a vitamin D potency of not less than 3,333 units (Steenbock) per gram. The halibut liver oil is assayed for vitamin A by the method described in the *Journal of the American Pharmaceutical Association* **19**: 616, 1930, and for vitamin D by the method of the Wisconsin Alumni Research Foundation (see under Viosterol, N. N. R., 1932, p. 424). The potency of the finished product is arrived at by a calculated dilution of the previously assayed oil, though some batches are biologically assayed.

PARKE-DAVIS HALIVER OIL WITH VIOSTEROL-250 D.—Halibut Liver Oil with Viosterol 250 D.—Halibut liver oil, adjusted by addition of maize oil to have a vitamin A potency of not less than 30,000 pharmacopeial units (U. S. P. X) per gram and by addition of a sufficient amount of viosterol in oil 250 D to assure a vitamin D potency of not less than 250 D [250 times that of the standard cod liver oil defined by the Wisconsin Alumni Research Foundation (or 3,333 units [Steenbock] per gram)].

Actions and Uses.—The same as those of cod liver oil (See general article, Cod Liver Oil and Cod Liver Oil Preparations, New and Nonofficial Remedies, 1932, p. 271).

Dosage.—For infants, 8 to 10 drops (3 to 3.5 minims) daily; for premature and rapidly growing infants, 15 drops (5.25 minims) daily; for older children, 15 to 20 drops (5.25 to 7 minims) daily; for adults, especially nursing and expectant mothers, 20 drops (7 minims) or more daily. The marketed preparation is accompanied by a special dropper designed to deliver approximately 3 drops to the minim.

Manufactured by Parke, Davis & Company, Detroit. U. S. patent and trademark applied for. The viosterol in oil 250 D used is manufactured under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Soluble Gelatin Capsules Parke-Davis Haliver Oil with Viosterol-250 D 3 minims: Each capsule contains 3 minims of haliver oil with viosterol-250 D, diluted with 3 minims of vegetable oil.

Parke-Davis haliver oil with viosterol 250 D is prepared by combining halibut liver oil, maize oil and viosterol in oil 250 D in such proportions that the finished product will have a vitamin A potency of not less than 30,000 pharmacopeial units (U. S. P. X.) per gram, and a vitamin D potency of not less than 3,333 units (Steenbock) per gram. The halibut liver oil is assayed for vitamin A by the method described in the *Journal of the American Pharmaceutical Association* **19**: 616, 1930, and for vitamin D by the method of the Wisconsin Alumni Research Foundation (see under Viosterol, N. N. R., 1932, p. 424). The potency of the finished product is arrived at by a calculated dilution of the previously assayed oil. Stability tests thus far reported indicate that the product will retain its potency when not exposed to extremes of light or of temperature.

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1932, p. 357).

The Cutter Laboratory, Berkeley, Calif.

Normal Serum (From the Horse). (See New and Nonofficial Remedies, 1932, p. 358).—Also marketed in bottles containing 100 cc.

Lederle Laboratories, Inc., Pearl River, New York.

Normal Horse Serum. (See New and Nonofficial Remedies, 1932, p. 358).—Also marketed in 30 cc. vial packages.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

HEINZ TOMATO JUICE

(Seasoned with Salt)

Manufacturer.—H. J. Heinz Company, Pittsburgh.

Description.—Pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice; packed in tins and bottles.

Manufacture.—Only the highest quality, carefully selected, vine ripened tomatoes are used; overripe or decayed fruit is rejected. The tomatoes are usually received at the factory within a few hours from the time of removal from the vine; they are thoroughly washed, selected, scalded with steam, trimmed of cores, underripe spots or other unsuitable material, and while still hot are passed to special pressure extractors in which the juice and more tender pulp are pressed out without the incorporation of air. This operation and all subsequent handling of the juice is carried out with as little exposure to air as possible. The juice is heated to 87 C.; a small amount of salt is added; it is filled into tins or bottles, which are sealed and processed at 87 C. for twenty minutes.

Analysis (submitted by manufacturer).—

	per cent
Moisture	93.3
Total solids	6.7
Ash	0.9
Salt (NaCl)	0.5
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	4.4

Calories.—0.2 per gram; 6 per ounce.

Vitamins.—Biologic assay proves the product to retain in high degree the vitamin content of the raw tomato juice. The vitamin A content is more than 10 per cent of that of butter. Ten grams per day provides adequate vitamin B for normal growth of rats; 3 cc. of juice affords protection against scurvy in guinea-pigs, which is only slightly more than the quantity of orange juice required. Vitamin G is present in small amount.

Claims of Manufacturer.—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C. Especially prepared for table use and as a vitamin C supplementary food for infant feeding.

PURITY MILK BREAD

Manufacturer.—Purity Baking Company, Decatur, Ill.

Description.—A white milk bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, powdered skim milk, sugar, butter (sweet unsalted), salt, yeast, malt syrup and a yeast food containing calcium sulphate, ammonium chloride, potassium bromate and sodium chloride.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.6
Ash	1.9
Fat	2.7
Protein (N × 6.25)	9.9
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	47.6

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—A milk bread of good quality.

DICKINSON'S LITTLE BUSTER HULLESS POP CORN

Manufacturer.—The Albert Dickinson Company, Chicago and Minneapolis.

Description.—Canned popcorn kernels with a proper moisture content for popping.

Manufacture.—Dwarf hullless variety of popcorn is raised under much the same conditions as is ordinary corn. The corn cobs with the husk partially removed are stored in outdoor specially constructed cribs for drying or "curing." The moisture content of the popcorn as it comes from the fields ranges from 16 to 21 per cent. The corn is air-dried until it assumes an average content of 12 per cent moisture. This natural curing requires from six to eight months, depending on the original moisture content and the weather conditions. The popping condition of the corn is determined by popping tests in which the increase in volume is carefully measured. The properly cured popcorn is shelled from the cob, cleaned by screening and winnowing to remove broken and imperfect grains and chaff, and automatically packed in hermetically sealed tins to preserve the popping quality.

Analysis (submitted by manufacturer).—

	per cent
Moisture	11.6
Ash	1.3
Fat (ether extraction method)	4.9
Protein (N × 6.25)	12.3
Crude fiber	3.0
Carbohydrates other than crude fiber (by difference)	66.9

Calories.—3.6 per gram; 102 per ounce.

Claims of Manufacturer.—Canned dwarf variety popcorn, guaranteed to pop.

GORMAN'S WHEAT BREAD

(66⅔ Whole Wheat Flour, 33⅓ White Flour)

Manufacturer.—Gorman's Bakery, Incorporated, Central Falls, R. I.

Description.—A whole wheat and white flour bread made by the straight dough method (method described in THE JOURNAL, March 12, 1932, p. 889); prepared from whole wheat flour, patent flour, water, sweetened condensed skim milk, sucrose, lard, yeast and salt.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.7
Ash	2.1
Fat	3.7
Protein (N × 6.25)	11.1
Crude fiber	1.4
Carbohydrates other than crude fiber (by difference)	45.0

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—This bread supplies cellulose bulk to the diet as an aid to dietary laxation or regulation.

FISHER'S BLEND BRAND FLOUR (BLEACHED)

Manufacturer.—Fisher Flouring Mills Company, Seattle.

Description.—An "all purpose" short patent flour prepared from red and white wheats; bleached.

Manufacture.—Selected red and white wheats are cleaned, scoured, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended, bleached with nitrogen peroxide and a mixture of benzoyl peroxide and calcium phosphate (1 pound to thirty-five barrels) and automatically packed in cotton sacks.

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.2
Ash	0.39
Fat	1.0
Protein (N × 5.7)	11.4
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	73.8

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—An "all purpose" short patent flour for general baking uses.

STORCK'S BREAD

Manufacturer.—Storck Baking Company, Parkersburg, W. Va.

Description.—A white bread made by the sponge dough method (as described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, dry skim milk, sucrose, salt, yeast, lard, malt syrup, and yeast foods containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, and a mixture of calcium acid phosphate and calcium peroxide.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	34.0
Ash	1.5
Fat	1.4
Protein (N × 6.25)	10.2
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	52.7

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

PURE CALIFORNIA EHMANN OLIVE OIL
PURE EHMANN OLIVE OIL

Manufacturer.—Ehmann Olive Company, Oroville, Calif.

Description.—Cold-pressed, unblended, olive oil.

Manufacture.—Mature California olives are harvested and delivered direct to the mill. Care is taken to prevent heating or molding through improper stacking of boxes of olives. The fruit is ground and pressed in hydraulic presses, which are adjusted so that the pit is not crushed. The expressed liquid is allowed to stand in settling tanks to permit separation of the oil, which is skimmed off, stored in tanks for several weeks and double filtered by gravity (a force filter or filter press is not used). The filtered oil is aged for at least six months and packed in bottles and tins. The oil is guaranteed not to contain in excess of 0.2 per cent free fatty acid as oleic acid.

Analysis (submitted by manufacturer).—

	per cent
Moisture	0.0
Fat (ether extract)	100.0
Free fatty acids (as oleic acid)	0.2
Specific gravity (15.6 C./15.6 C.)	0.915
Refractive index at 15.5 C.	1.4712
Iodine number (Hanus)	85.
Saponification number	190.
Unsaponifiable matter	1.4

Calories.—9.0 per gram; 255 per ounce.

Claims of Manufacturer.—A pure cold-pressed virgin olive oil for table and medicinal use.

WEIDEMAN BOY BRAND TOMATO JUICE

Manufacturer.—The Loudon Packing Company, Terre Haute, Ind.

Description.—This product is the same as Loudon Brand Tomato Juice (THE JOURNAL, June 25, 1932, p. 2289).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 17, 1932

THE NATURE OF PROTEIN SOLUTIONS

The question of the nature of protein solutions has disturbed workers in the field for many years. On the one hand are the views advocated by such colloid chemists as Wolfgang Ostwald that the proteins are to be considered primarily as colloids and as such are incapable of forming true chemical combinations with other substances. Opposed to this view are the conceptions of such biologic chemists as Sørensen, Michaelis and Pauli, who consider the proteins primarily as amphoteric electrolytes, which, however, are unique in that they also exhibit certain colloidal properties because of their enormous molecular size. Recent investigations of these substances, carried out largely under the direction of Prof. S. P. L. Sørensen in the Carlsberg Laboratories, in Copenhagen, have led to conceptions of the nature of protein solutions which are bound to find important application in our ideas concerning the behavior and the function of the proteins in protoplasm. These investigations have been ably discussed and summarized in a recent publication by Sørensen.[1]

Studies of the behavior of the serum globulins led Sørensen, some years ago, to conclude that euglobulin and pseudoglobulin were reversibly combined in a loose chemical combination, E_pP_q, in which E and P represent euglobulin and pseudoglobulin complexes, respectively, combined in the relative proportions of p and q. Subjecting serum to such procedures as dialysis, or addition of ammonium sulphate, results in a shifting of the proportions of E and P with the resultant formation of less soluble and more soluble complexes of the two proteins. Sørensen failed to prepare, even after repeated fractionations, samples of either euglobulin or pseudoglobulin that were completely free from the other protein. These results with the globulins led to a series of investigations of other proteins with the result that apparently pure preparations of serum albumin, casein and gliadin were each found to consist of mixtures of an unknown number of proteins of similar character combined in a reversible manner. Such proteins, according to Sørensen, represent "reversibly dissociable component systems" and may be represented by the formula $A_XB_YC_Z$ . . ., in which A, B, C and so on represent components of a definite character and composition (e. g., polypeptides) and x, y, z and so on indicate the number of such components in the complex system. In each component, atoms or groups of atoms, such as amino-acids, are linked together by means of strong chemical bonds, whereas the complexes are formed by the union of many components through weak, residual valences. Chemical or physical agents that act on the chemical bonds produce irreversible changes in the protein molecule, whereas the residual valences readily respond to changes in salt concentration, p_H or temperature, in a reversible manner. Although the fractions obtained by the various fractionation methods employed possess the essential properties of the initial material, they exhibit variations in physical properties and chemical composition that are best considered as being due to the varying amounts of the individual components in each fraction. In no case thus far studied has Sørensen succeeded in isolating a component capable of resisting further fractionation by appropriate methods.

In biologic fluids, these simple protein complexes combine, by means of their residual valences, not only with complexes of the same kind but also with other complexes present in the system. In serum, for example, are probably found not only those systems, such as albumins and globulins, which may be isolated by suitable precipitation methods, but also mixed systems containing both of these substances combined in varying proportions not only with each other but with other serum constituents, such as the lipids.

These conceptions of Sørensen account for the extraordinary difficulties encountered in the isolation of reproducible protein systems from such complex biologic fluids as serum or egg white. They also serve to explain results obtained by Svedberg[2] and his collaborators, using entirely different experimental methods. Svedberg finds, for example, that there is no substance in fresh egg white with a molecular weight which corresponds to that of crystallized ovalbumin, but that this substance appears only after the egg white is treated with ammonium sulphate, as in the crystallization process. Similarly, a protein with the molecular weight of lactalbumin appears in milk only after treatment with ammonium sulphate. In the case of serum, Svedberg finds that half saturation with ammonium sulphate precipitates globulin having a definite molecular weight and that the euglobulin and pseudoglobulin appear when this substance is subjected to further fractionation processes. These results of Svedberg, when interpreted in accordance with the conceptions of Sørensen, indicate that the simple proteins with which we are familiar exist in nature only as part of more complex systems. The difficulties of the protein chemist are increased enormously for, in addition to extracting from complex biologic mixtures, by standardized methods, component systems that are reproducible, it now becomes essential to develop methods for the separation of these systems into their individual components. The determination of the nature of these comparatively simple components must await further progress in this important field.

---

[1] Sørensen, S. P. L.: The Constitution of Soluble Proteins (Reversibly Dissociable Component Systems), Compt. rend. trav. Lab. Carlsberg **18**, No. 5, 1930.

[2] Svedberg, T.: Molecular Weights of the Proteins in Their Native State, Nature **128**: 999 (Dec. 12) 1931.

There still remains to be pointed out some of the effects which these new conceptions of the nature of protein solutions must have on the interpretation of laboratory work involving the proteins and, more generally, on one's picture of the part these substances play in protoplasm. Such determinations as albumin-globulin ratios, for example, are probably dependent largely on the nature of the complexes present in the serum and must be considered from this point of view. In protoplasm, instead of relatively inert, independent, colloidal particles, there are probably complex systems in equilibrium with one another and constantly shifting in response to changes in environment. The multiplicity and flexibility of these systems are probably of profound importance in determining the adaptability of the organism to its environment.

CORRELATION OF BLOOD DYSCRASIAS ON HYPOTHESIS OF BONE MARROW DEFICIENCY

New data concerning the blood and blood forming organs has given renewed impetus to progress in hematology. As a result of the development of much material, classification of separate syndromes is being attempted on the basis of causative factors and pathogenesis. Unfortunately, the etiology of most blood dyscrasias is not definitely known. The recent tendency of those interested in clinical hematology is to focus attention on the pathology of the blood forming organs. This fundamental approach yields valuable information. Moreover, in recent discussions on hematology there has been a tendency to substitute rigid systems of classification for rational descriptive analyses of each dysfunction.

Lescher and Hubble[1] have attempted to correlate disorders of the bone marrow with a group of conditions in which the blood elements are deficient. These include agranulocytic angina, idiopathic purpura hemorrhagica, pure red cell anemia and idiopathic aplastic anemia. They propose a nomenclature to emphasize the common pathogenesis of aplasia or hypoplasia of bone marrow deficiences. Aplastic anemia, in which all three elements are deficiently produced, should be known as myelophthisis; agranulocytic angina, in which there is defective formation of granulocytes, as granulophthisis; the rare cases of pure red cell anemia, as erythrophthisis; and one group of purpura hemorrhagica as thrombophthisis. It is their opinion that this nomenclature emphasizes the connection between these disorders and indicates their origin as bone marrow deficiencies. As the authors point out, these diseases are of fundamental importance because they compel consideration of the bone marrow function and the factors that normally stimulate and inhibit the production of blood elements. Such a conception also has virtue in emphasizing a difference in prognosis when the clinical picture may be indistinguishable.

Although Lescher and Hubble present an excellent critical review of various theories of the pathogenesis of these disorders, it is questionable whether enough that is definite has been developed to justify the use of the proposed nomenclature. Conclusive evidence is not presented that the changes in the bone marrow are as clear cut as they indicate. In the cases of agranulocytosis that Schultz first reported, involvement was not noted in the erythropoietic or megakaryocytic elements. Subsequent case reports by other observers, however, indicated that the pathologic changes in the bone marrow were not so sharply defined in all cases and that anemia and hemorrhage may sometimes be present. Variation in the clinical picture and response to therapy have also been noted. Neither is it established that any group of idiopathic purpura hemorrhagica can be attributed solely to deficient production of platelets by the bone marrow. In some cases megakaryocytes are reported as actually increased in the bone marrow; in others they are morphologically and functionally changed and in another group they are reduced. It has not been possible to separate these cases on the basis of clinical and pathologic observations. The authors suggest that thrombopenic purpura may eventually be divided into two or more groups in which there is (1) a deficient production of megakaryocytes or (2) a defective separation of the platelets from the megakaryocyte. If platelet production alone is involved in the pathogenesis of idiopathic purpura hemorrhagica, it is difficult to understand why patients who undergo splenectomy eventually have a low platelet count but are free from purpura. An improved functional capacity of platelets after splenectomy, which might be used as an explanation, has never been adequately demonstrated except by inference. The authors review the various objections to attributing hemorrhage solely to platelet reduction and consider the part which pathologic changes of the capillaries may play in the production of symptoms. They apparently feel, nevertheless, that there is one group of idiopathic purpura hemorrhagica which may develop solely on the basis of deficient platelet production.

The disorders enumerated are striking examples of the impossibility of defining clearly any disorder of which the etiology is unknown. Indeed, it is difficult to arrange isolated observations regarding the disease in any orderly sequence without the proper conception of cause and effect. While it is of value to examine data critically from time to time as the authors have done, it is apparent that the time is not yet ripe for a correlation of a group of disorders of the blood and blood forming organs whose pathogenesis is still in doubt. Such premature correlation minimizes the divergent features which demand study and may serve to inhibit or to give a wrong trend to rational therapy.

---

[1] Lescher, F. G., and Hubble, Douglas: A Correlation of Certain Blood Diseases on the Hypothesis of Bone Marrow Deficiency or Hypoplasia, Quart. J. Med., July, 1932.

"VIRULENCE CYCLE" IN EPIDEMICS

Ancient clinicians used to feel that the demon responsible for a specific epidemic hibernated in the underworld. Then, emaciated and ravenous, it fought its way past the holy ramparts into the city, where it fed first on defenseless infants, later on the stronger adults. Finally, satiated, it lost its lust for human flesh and retired for another hibernation. Modern clinicians consider this merely a fantastic explanation of the observed course of epidemics. However, L. T. Webster [1] asserts that many of our current epidemiologic theories are nothing more than thinly disguised paraphrases of this ancient demonic metaphor.

Bacteriologists of the Pasteur-Koch era intuitively translated many ancient traditions into the newly developed language. They assumed, for example, and apparently without realizing the necessity of experimental proof, that specific infectious agents are always introduced into a community in an attenuated form and are subsequently increased in virulence or infectivity by successive human passage. After the "peak" of the resulting epidemic, the virulence was assumed to lessen, presumably as a result of microbic conflict with the resistant population. With a final almost total loss of virulence, the epidemic ceased.

This virulence cycle found some support in the increased infectivity of old test-tube cultures on successive animal passage, and in the usual initial low virulence of certain natural viruses when transferred to another animal species. Recognizing the inadequacy of such evidence, however, Webster and his colleagues made careful comparisons of the virulence of the specific causative agents in the various stages of their experimentally produced epidemics, all tests being made in the same animal species. To their surprise they found that in their carefully quarantined mouse and rabbit populations the virulence of the specific causative agents remained practically unchanged throughout all epidemics. "In no instance were significant differences in the virulence of preepidemic, epidemic and postepidemic strains detected. . . . Strains from fatal cases proved to be of the same virulence as similar strains from healthy carriers." Bacterial dissociation and bacteriophage phenomena, although abundantly present, seemed to play no part in altering virulence, or in otherwise limiting the spread of infections. The Rockefeller Institute workers, of course, did not generalize from these observations that virulence changes may not play a part under other experimental conditions. Their results, however, have definitely shifted the burden of proof to clinicians who champion the conception of "virulence cycles" in epidemics.

Webster and his co-workers emphasize the importance of the initial dose of specific infectious agents in relation to the general resistance of a population. The reduction of general resistance, for example, by the introduction of low resistant immigrants was sufficient to cause a latent epidemic manifest only by subclinical cases or carrier states to flare up into a devastating pestilence. Depression of general herd resistance by climatic conditions or by dietary deficiencies caused similar explosive outbreaks. Optimal diets or dietary reinforcements with butter fat or cod liver oil tended to prevent or at least lessen herd mortality.

It was an essential part of the Rockefeller Institute technic to produce herd epidemics through natural portals of infection. Their results, therefore, seem to represent complete immunologic pictures including the combined results of portal defenses and internal protective factors.

Current Comment

THE CONTENT OF CHOLESTEROL IN THE BLOOD

A fundamental feature in the application of various chemical "constants" of the fluids of the body to the needs of clinical diagnosis lies in the dependability of the data that are employed. Departure from the "normal" figures can then be utilized for conjectures as to the existence of abnormal conditions. Thus, it is essential to know definitely about the variability in the content of the blood sugar during health and under customary changes in routine and regimen, before a proper interpretation can be given to analytic results that deviate from "average" records. There are diurnal variations in body temperature that must not be mistaken for indications of ill health. For many body "constants" the permitted range of variation that is physiologic has been well established. Much remains to be accurately ascertained. During recent years attention has been focused by many clinicians on the cholesterol content of the blood. There have been numerous reports of deviations from the normal with attempts to associate them with special types of disease. One may almost say that a cholesterol cult has arisen even before the physiologic rôle of this unique lipid has been established. How much remains to be done before any well established norms are available has been indicated by recent studies of Bruger and Somach[1] at the New York Post-Graduate Medical School. They show that the cholesterol content of the blood examined under strictly comparable laboratory conditions—an important detail—is by no means constant from hour to hour, even in the fasting state. In fact, healthy persons may show practically the same degree of variation as is found in the blood in pathologic states. Contrary to what many have been led to expect, the ingestion of food is reported to have no appreciable effect, either immediate or late, on the cholesterol content of the blood. In general the figures are lower in the morning; hence it is suggested that cholesterol studies be carried out then. For the present one is forced to concede that normal persons may undergo variations in the content of blood cholesterol which are of the same magnitude as those found in pathologic states. According to Bruger and Somach, this statement must be modified only for those clinical conditions which accompany severe cachexia or apply to patients at the point of death.

---

[1] Webster, L. T.: Experimental Epidemiology, Science 75: 445 (April 29) 1932. A bibliography is given by Topley, W. W. C., and Wilson, G. S.: The Principles of Bacteriology and Immunity, 1929, vol ii, chap. liv, pp. 767-786.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

September 19. And Then the Schoolboy.
September 21. The Father of Surgery.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:45 to 11 over Station WBBM.

The subject for the week is as follows:

September 24. Obesity.

This schedule is based on Chicago daylight saving time, one hour faster than central standard time.

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 11, 1932, of the *Quarterly Cumulative Index Medicus* has just appeared. It represents the first issue since this publication was taken over completely by the American Medical Association. The book is published at considerable loss and represents a contribution by the American Medical Association to the advancement of medical science. In a desire to make the publication satisfactory to its principal users, a letter was sent early in July to all libraries subscribing to the *Index*, asking the opinion of librarians as to the desirability of publishing a special edition of the *Index* on 100 per cent rag paper so as to give it permanence. Three hundred and eighty-four letters were sent to domestic, foreign and Canadian librarians, and approximately 50 per cent of the librarians addressed have replied up to this time. Approximately 6 per cent of the librarians indicate a desire for a special edition and a willingness to pay for such a special edition at an advanced rate.

With the issuing of the present volume, arrangements have been made to improve the binding greatly without, however, increasing the cost of the *Index*. The binding now used has greater strength and durability than the one formerly used.

Because of the relatively small number of librarians indicating willingness to subscribe to the rag paper edition, it has been decided not to issue the *Index* in this form.

The majority of letters received from librarians contain high praise for the *Index* as produced and commendation for the Association in publication of this work. One librarian writes, "Just as the sterilizer is the center of the hospital so is the *Quarterly Cumulative Index Medicus* the center around which the medical library revolves."

The letters from the librarians also indicate that most medical libraries are at this time undergoing great financial strain and relatively little expansion.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

University News.—The Rockefeller Foundation recently made available to Stanford University a gift of $200,000 to promote research in the social sciences. This research has been supported for a number of years by the Laura Spelman Rockefeller Memorial Fund. Seventy-five thousand dollars of the total, which is to be distributed over a five year period, is unconditional. The remainder will be granted on the condition that the university provide an equal amount from other sources.

Campaign to Enforce Egg Standardization.—The August 27 issue of the bulletin of the state department of health notes that city and county health officers of California are assisting in a campaign to enforce the law pertaining to the standardization of eggs. One hundred thousand copies of an explanatory digest of the law have been distributed. The law is designed to establish standards by which the consumer can purchase eggs and be certain of their quality and size. The educational campaign was begun by the food and drug enforcement division of the state health department.

Change in Military Instructors.—As a result of the economy bill passed by the last congress, Col. William A. Powell, professor of medicomilitary science and tactics, University of California Medical School, has been relieved of his duties after eight years' service. Col. Cosam J. Bartlett, U. S. Army Medical Corps, stationed at the Presidio, has been placed in charge of medicomilitary science and tactics at the medical school to see that those students already started in the curriculum are allowed to complete it. As soon as the present medical students are graduated, the subject will be discontinued, unless national finances improve in the meantime.

GEORGIA

Society News.—Dr. Charles Usher, Savannah, among others, addressed the First District Medical Society, August 3, on "Massive Collapse of the Lung," and Dr. John William Shearouse, Savannah, "Transurethral Prostatectomy."——Dr. Benjamin H. Minchew, Waycross, addressed the Ware County Medical Society, August 5, on "Physiology of Squint."——The Twelfth District Medical Society, at its meeting in Vidalia, July 7, was addressed, among others, by Dr. Cleveland Thompson, Millen, on "Practical Treatment of the Common Neuroses."——At a meeting of the Randolph County Medical Society in Cuthbert, August 3, N. Meredith DeJarnette, Atlanta, spoke on "Arsphenamine Poisoning."——Speakers before the Muscogee County Medical Society, August 11, were Drs. Otis D. Gilliam and James H. McDuffie, Jr., both of Columbus, on ruptured appendix and amenorrhea, respectively.——Dr. Allen R. Rozar, Macon, discussed "Fractures in and Around the Elbow" before the Macon County Medical Society, August 2.

ILLINOIS

Society News.—The Massac County Medical Association was host to the fifth quarterly meeting of the Southwestern Kentucky Medical Society in Metropolis, August 23. Speakers were Drs. Charles E. Gilliland and Paul B. Nussbaum, St. Louis, on newer aspects of pancreatic diseases and cancer, respectively.——The St. Clair County Medical Society was addressed, September 7, by Dr. Joseph P. Costello, St. Louis, on "Common Disorders of Childhood." Dr. Daniel L. Sexton,

---

[1] Bruger, M., and Somach, I.: The Diurnal Variations of the Cholesterol Content of the Blood, J. Biol. Chem. 97:23 (July) 1932.

Dr. Robert [illegible] Library

St. Louis, addressed the society, September 1, on "Practical Value of Present-Day Endocrine Therapy."——Dr. Philip H. Kreuscher, Chicago, addressed the Fulton County Medical Society, August 24, on "Fractures of the Elbow and Hip."——Dr. William H. Olmsted, St. Louis, addressed the Madison County Medical Society, September 2, on "Arteriosclerosis of the Lower Extremities with Particular Reference to the Treatment of Diabetic Gangrene."——Dr. Henry E. Monroe, Shelbyville, spoke on appendicitis before the Shelby County Medical Society at Lithia Springs, recently.

Children's Clinics in Physicians' Offices.—School children of Springfield will receive free physical examinations and those unable to pay will be given treatment without charge, according to a plan adopted by the Sangamon County Medical Society, September 1. Vaccinations against smallpox and immunizations against diphtheria will be provided at reduced rates for families in moderate circumstances. The program was sponsored by Dr. Gottfried Koehler, who was recently appointed director of health and hygiene of Springfield schools, a position created with a view to instituting better health supervision in the schools. According to the plan, every doctor in the society will conduct a children's clinic in his office during one office period each week. The school health service will refer all cases to the family physician. The Sangamon-Menard-Logan County Dental Society is planning to adopt a similar program, it was reported. The dental examinations will be conducted at the schools instead of in the dentist's office. The plan will prevail only during the current economic depression.

Chicago

Dr. Curtis Goes to Ohio University.—Dr. George M. Curtis has resigned as professor of surgery in the Graduate School, Division of Biological Sciences, University of Chicago, to accept a similar position at Ohio State University College of Medicine, Columbus. Dr. Curtis became associated with the university in 1925, when he was appointed associate professor of surgery and associate professor of experimental surgery under the Douglas Smith Foundation for Medical Research at the institution. He will assume his new position at once.

Child Guidance Work.—Dr. Herbert E. Chamberlain has been appointed associate professor of psychiatry in the department of pediatrics, Division of Biological Sciences, University of Chicago. In this capacity he will assist in a study of delinquent children in Chicago. Medical cooperation covering the entire field of pediatrics will be provided for the study and it is planned to establish an adequate child guidance clinic to which children in need of psychiatric advice and treatment may be referred. While this clinic is being established to assist in this social service study, it is understood that patients from other sources will be accepted, particularly those referred by physicians in the department of pediatrics. It will be administered as a regularly constituted clinic under the jurisdiction of the department of pediatrics. Dr. Chamberlain recently resigned as director of the child guidance clinic of the board of education at Minneapolis.

INDIANA

License Reinstated.—At a meeting of the state board of medical examiners, July 14, the license of Dr. Pierre Lafayette Stewart, formerly of Fort Wayne, was reinstated on his "showing that he will engage in reputable practice." Dr. Stewart's license had been revoked, May 19, 1913, for his connection with a medical outfit that advertised.

IOWA

Graduate Courses.—The Speakers' Bureau of the Iowa State Medical Society will begin in Monticello, September 21, a series of graduate courses covering surgery in general practice, obstetrics and pediatrics. The fee is $15 for the combined courses, which will be held on Wednesday nights and run for ten weeks.

KANSAS

Personal.—Dr. Arthur J. Revell, Arma, became health officer of Cherokee County, September 1, succeeding Dr. Clarence R. Hepler, who has accepted a similar position in Sedgwick County.

The Old Settlers' Parade.—Dr. Solomon T. Shelly, Mulvane, now 76 years of age, held a reception on the lawn of his home, August 25, for all persons whose birth he attended during the past fifty years, 1,000 of whom attended. Dr. Shelly also rode the same day in the Old Settlers' Parade on a pony, the only means of travel during his first years at Mulvane.

MAINE

Health Department Wants Paralysis Serum.—The state department of health has made public a request for blood of persons who have had infantile paralysis not more than twenty years ago. Five dollars will be paid to each person responding to this appeal. The serum prepared from the blood given in this manner will be made available for all reported cases of infantile paralysis.

MARYLAND

Reorganization in Health Department.—R. S. Craig, director of the bureau of chemistry and food of the Baltimore health department, has been appointed director of the sanitary section, with supervision over all the sanitary activities of the department. This is a new position in accordance with plans for reorganization of the health department. F. A. Korff, now assistant head of the bureau of chemistry and food, will become director of that division. Later on, the announcement stated, the medical activities of the department will be coordinated under one head.

Reporting Occupational Diseases.—At a meeting of the state board of health, August 18, the board designated the Baltimore health department as its agent in receiving reports of cases of occupational disease within the city. Reports received by the city health department under the arrangement will be transmitted to the state board of health. The city health department plans to study conditions under which occupational diseases occur, for the purpose of assisting the industries in their prevention. In order to ascertain the extent of the problem, physicians in private practice or in hospital or dispensary service are requested to report industrial cases to the city health department on the postcards furnished for reporting communicable diseases.

Examination of Baltimore Children.—During the school year ended July 31, 9,123 children in public and parochial elementary schools in Baltimore were examined under supervision of the Baltimore County Health Department. Of these, 1,488 were underweight or gave other evidence of malnutrition; 7,703 needed dental attention, and 6,877 had infected or enlarged tonsils. Examinations in the public schools were made as a part of the regular activities of the health department, and those in the parochial schools on request. Analysis showed that the percentage of malnutrition was lowest in the first grades and gradually increased grade by grade, up to and including the sixth. Twenty-two child health conferences for the examination of preschool children were held in the county during the year; 722 children were examined. In this group 621 needed dental care; 421 had unfavorable conditions of the nose and throat and ninety-two were underweight. In both groups, 2,780 children were immunized against diphtheria and 998 had corrections made.

MASSACHUSETTS

Fall Graduate Courses.—A course of fifteen lectures and demonstrations on internal medicine for graduates in medicine will be given under the auspices of Harvard University Medical School by Dr. Frederick T. Lord, one each week, beginning September 21 and continuing through December 28. Each exercise will consist of the study of cases and an informal lecture. Subjects to be covered include diseases of the gastro-intestinal system, respiratory system, kidneys, blood-forming organs, the circulation, locomotor system, deficiency diseases, heart disease, syphilis, pneumonia, infantile paralysis and tuberculosis. The fee for the course, which will be given at Massachusetts General Hospital, will be $25.

MICHIGAN

Society News.—Dr. Salvatore Lojacono, superintendent of the Morgan Heights Sanatorium, Marquette, was elected president of the Michigan Sanatorium Association at its annual meeting, August 27, and Dr. Roger J. Hanna, Jackson, was elected secretary. The association will hold its next meeting in the Jackson County Sanatorium, Jackson.

Eyesight Swindlers Foiled.—That the "eyesight specialists" are again active in Michigan is indicated by a recent newspaper report. According to the account, two men, representing themselves as "eyesight specialists," called at the home of a farmer in Coe township. One conducted the examination, while the other remained outside in a car. After a lengthy examination, one of the children in the family proved to have a "cancer on the eye," according to the report, and the eyesight could be saved only by an operation in an "Eastern clinic." However, the "specialist" suddenly recalled that his waiting associate had developed a serum which would bring about results similar to those of the operation. The second "specialist" dropped the "serum" into the child's eye and removed a few minutes later what he said was the cancer. One of the men accompanied the farmer to the bank to receive the $875 which was charged for this "operation" However, the cashier regarded the withdrawal as rather large and after being informed of the circumstances called the police When the police arrived the "specialist" had left to find his associate.

NEVADA

Society News.—Dr. Ralph A. Reynolds, San Francisco, addressed the Washoe County Medical Society, June 14, on recent advances in endocrinology.

State Medical Meeting at Reno.—The twenty-ninth annual meeting of the Nevada State Medical Association will be held in Reno, September *23-24*, at the Hotel Golden, under the presidency of Dr. Amos C. Olmsted, Wells. Speakers announced in the program are:

Dr Miley B Wesson, San Francisco, "Infection in the Genito Urinary Tract"
Dr. Joseph P. Tuttle, Reno, "Prostatitis and Referred Pain"
Dr. James P Kerby, Salt Lake City, "Intravenous Pyelography"
Dr. Leo P Bell, Woodland, Calif, "Results of Operative Procedure on Stomach and Duodenum for Cure of Gastric and Duodenal Ulcers"
Dr James T Watkins, San Francisco, "Fractures of the Spine"
Dr William D Donoher, Salt Lake City, "Sinus Diseases"
Dr Charles A. Dukes, Oakland, Calif, "Treatment of So Called Inoperable or Incurable Cancers"
Dr Fuller B Bailey, Salt Lake City, "Functional Diseases of the Intestinal Tract"
Dr. Edgar L Gilcreest, San Francisco, "Undiagnosed Shoulder Lesions and Injuries"
Dr Martin A Robison, Reno, "Anesthetics"

Dr Olmsted will deliver the presidential address Friday morning at the opening session.

NEW JERSEY

New Division of Rockefeller Institute.—The department of plant pathology of Rockefeller Institute for Medical Research will start work about October 1 in its new laboratory now being completed at Princeton. Louis O. Kunkel, Ph D, who has been pathologist at the Boyce Thompson Institute for Plant Research at Yonkers, N Y., since 1923, is to be in charge of the new division (The Journal, June 20, 1931, p. 2131). The name of the entire Princeton section of the institute has been changed to the Department of Animal and Plant Pathology of the Rockefeller Institute for Medical Research. This is said to be the first time that the pathology of human beings, of plants and of animals has been studied in a single investigative unit.

NEW YORK

Personal.—Dr. Harry C. Hummell has been named deputy health officer of Rochester to succeed Dr. Arthur M. Johnson, who recently became health officer on the retirement of Dr. George W. Goler.

Hospital Celebration.—St. Mary's Hospital, Rochester, celebrated its seventy-fifth anniversary, September 8-10 The hospital was opened, Sept 8, 1857, by three Sisters of Charity. The present building, made necessary by an influx of wounded soldiers, was erected in 1862. In 1891 the interior was destroyed by fire, but it was immediately rebuilt. Since its establishment, the hospital is said to have cared for 137,726 patients, exclusive of outpatients.

New York City

Course in Psychoanalysis.—The New York Psychoanalytic Institute announces a series of ten lectures on psychoanalysis in medicine, to begin October 6 and continue for ten successive Thursdays. The lecturers will be:

Dr Clarence P Oberndorf, "History and Scope of Psychoanalysis" and "Psychopathology of Everyday Life—Mental Mechanisms"
Dr. Abraham A Brill, "Sexual Theory"
Dr Monroe A Meyer, "General Theory of the Neuroses"
Dr Dorian Feigenbaum, "Conversion Hysteria"
Dr. Alexander Sandor Lorand, "Anxiety Hysteria"
Dr. Philip R Lehrman, "The Compulsion Neurosis"
Dr Gregory Zilboorg, "Manic-Depressive Psychoses"
Dr Abraham Kardiner, "Schizophrenic Psychoses"

Registration may be made with Dr. Meyer at the institute, 324 West Eighty-Sixth Street. A fee of $10 will be charged.

The Fifth Annual Graduate Fortnight.—Following are the names of the speakers who will address the evening sessions of the Fifth Annual Graduate Fortnight of the New York Academy of Medicine, October 17-28.

Dr. Henry E Sigerist, Baltimore, "The History of Cancer"
Dr. Francis Carter Wood, New York, "Cancer Research"
Dr James Ewing, New York, "Factors Constituting Malignancy and Tumors"
Dr Harrison S Martland, Newark, N. J, "Consecutive Clinical and Pathological Events in Cancer"
Louis I Dublin, Ph D, New York, "Importance of Statistics in Cancer Control"
Dr Charles A Elsberg, New York, "Tumors of the Brain"
Dr Harvey Cushing, Boston, "Tumor of Optic Chiasm and Optic Tract"
Dr W Gordon M Byers, Montreal, Que, "Tumors of the Eye and Orbit"
Dr Samuel J. Kopetzky, New York, "Cholesteatoma"
Dr Byron P Stookey, New York, "Tumors of the Spinal Cord"
Dr Dean Lewis, Baltimore, "Tumors of the Nerves"
Drs George J Heuer and James Alexander Miller, New York, "Tumors of Pleura and Lungs"
Dr Edwin Beer, New York, "Tumors of the Bladder"
Dr Joseph F McCarthy, New York, "Malignancies of the Prostate"
Dr. George Gray Ward, Jr, New York, 'Cancer of the Uterus"
Dr Thomas S Cullen, Baltimore, "Fibroids and Adenomata"
Dr Benjamin P Watson, New York, "Tumors Complicating Pregnancy"
Dr Donald C Balfour, Rochester, Minn, "Cancer of the Stomach"
Dr. Daniel F Jones, Boston, "Tumors of the Colon and Rectum"
Dr Carl Eggers, New York, "Tumors of the Mouth and Tongue"
Drs James M Hitzrot and Ralph E Herendeen, New York, "Tumors of Bone and Allied Structures"
Dr Abernathy Benson Cannon, New York, "Tumors of the Skin and Mucous Membrane"
Dr Lloyd F Craver, New York, "Hodgkin's Disease and Lymphadenomata"

Afternoon clinical programs will be presented in eighteen leading New York hospitals. Concurrent with the fortnight and for a week thereafter, a scientific exhibit of approximately 3,000 units will be on view at the academy building. Demonstrations will be held at regular intervals in connection with some of these

OHIO

Fifth District Meeting.—The annual meeting of the Fifth Councilor District of the Ohio State Medical Association was held, September 16, in Cleveland Four addresses on pulmonary tuberculosis were presented by Cleveland physicians as follows Drs Joseph C Placak, diagnosis, Richard Dexter, diagnostic errors; Raymond C McKay, medical management; Samuel O Freedlander, surgical treatment Drs Henry J. Gerstenberger and Herbert S Reichle, Cleveland, presented a paper on tuberculosis in infancy and childhood Drs Marion A Blankenhorn and Robert H McDonald, Cleveland, spoke on neurologic manifestations and treatment, respectively, of pernicious anemia, Vernon C Rowland, on anemia of pregnancy, and Roscoe D Leas, treatment of secondary anemia. At an evening session held in conjunction with the Cleveland Academy of Medicine, Dr Gerald B Webb, Colorado Springs, Colo, was the guest speaker, on "Practical Points in the Diagnosis and Therapy of Pulmonary Tuberculosis" Dr Harry V. Paryzek is councilor for the district

PENNSYLVANIA

Society News.—The Second Councilor District of the Medical Society of the State of Pennsylvania held a meeting at the Reading Country Club, September 14 Dr Charles H Frazier, Philadelphia, spoke on "The Goiter Problem" and Dr. Walter F. Donaldson, Pittsburgh, on "The Renaissance of the Family Doctor." Dr. Charles Falkowsky, Jr, Scranton, president-elect of the state society, and Dr William H Mayer, Pittsburgh, president, made addresses, and Dr Mary E Lehman, Bristol, presented a brief history of the Bucks County Medical Society.

Philadelphia

Personal.—Dr. Abraham I. Rubenstone has been named medical director of Mount Sinai Hospital to succeed the late Dr. Henry B Shmookler. Dr. Rubenstone was attending physician at the hospital.

University News.—A sixty-bed addition to the building of the department of children's diseases of Temple University School of Medicine has been begun and twelve physicians have been added to the department staff, it was announced, September 2. The new appointees, who will assist Dr. Ralph M. Tyson, recently named professor of pediatrics, are Drs Henry H. Perlman, William H. Crawford, Edward D. Atlee, James E. Bowman, Scott P Verrei, Joseph Levitsky, Robert S. Heffner, Paul B Bender, Charles R. Barr, Vincent T. Curtin, Pascal F. Lucchesi and Samuel Goldberg.

SOUTH CAROLINA

Hospital News.—St Francis Hospital, formerly the Emma Moss Booth Memorial Hospital, Greenville, was opened for patients, July 18, by the Sisters of St. Francis. The building, which has a capacity of sixty beds, has been remodeled.

Society News.—The Abbeville County Medical Society was reorganized, August 12, at a meeting at the Abbeville County

Memorial Hospital Dr John V. Tate, Calhoun Falls, was elected president and Dr Francis L Mabry, Abbeville, secretary ——Dr Julius H Taylor, Columbia, addressed the Columbia Medical Society in July on "Treatment of Varicose Veins by the Injection Method"——Dr Lawrence H McCalla, Greenville, spoke on varicose veins and Dr Richard M Politzer, Greenville, on "Pitfalls of Pediatric Practice" before the Oconee County Medical Society at Walhalla, August 9.

VIRGINIA

Personal.—Dr Robert V Funston, Detroit, has been appointed professor of orthopedic surgery at the University of Virginia School of Medicine, succeeding Dr Allen F Voshell Dr Funston is a native of Virginia and a graduate of the university Before going to Detroit in 1922 he was associated with the department of orthopedic surgery at the University of Iowa School of Medicine——Dr Roy K Flannagan, assistant state health commissioner, has been detailed as medical adviser to the state department of public welfare——Dr Samuel T A Kent, Ingram, recently completed fifty years of practice in Halifax County

Illegal Practitioner Sentenced.—J E Gore, St Albans, W Va, is reported to have been fined $50 and costs and sentenced to six months in jail in Lexington after a hearing before Justice of the Peace Charles Cummings, August 11, on a charge of practicing medicine without a license The jail sentence was suspended on condition of good behavior for the next thirty years and until he should become qualified to practice medicine in Virginia It is said that Gore has for several years come into Rockbridge County at intervals to treat persons with cancer or supposed cancer with caustic pastes, collecting $100 or more in some cases In addition to paying the fine and costs, he was required to return $456 25 which he had collected from Lexington residents, according to the report

GENERAL

Outbreaks of Typhoid.—Two deaths are reported to have occurred in an outbreak of typhoid in a religious cult in De Kalb County, Ala It was said that when fifteen members of the cult became ill they refused medical aid until after the two had died——Ninety-three cases of typhoid have been reported in Philadelphia since January 1, in comparison with forty-nine in the same period of 1931——Summonses were served on 100 beach pedlers and 60 proprietors of stands at Coney Island, N Y, August 28, in a campaign against typhoid, which is said to be unusually prevalent in adjacent areas——An epidemic of paratyphoid has been reported from Clarion County, Pa, affecting about sixteen persons One death occurred, that of Dr Charles C Huston, Knox, who died August 8 The source of the infection had not been determined at that time

Radium-Active Company's Remedies Not Therapeutic.—The Federal Trade Commission has ordered Radium-Active Remedies Company, Pittsburgh, to stop representing that its products cure diseases or pathologic conditions of the human body or that they are radioactive unless they have radioactivity sufficient to give or add to the products a therapeutic effect when used in this capacity The commission found that the substance used as an ingredient which was claimed to be radioactive had in fact a radioactivity of less than 2 32 millimicrograms of radium a gram According to the commission, there is no therapeutic effect derived from the use of any medicament or medical appliance prescribed or used for the relief of disease or human ailments which has a radioactivity of this percentage None of the persons in charge of the company or employed by it were licensed practitioners in medicine, it was said Two of the officers who had been with the organization since 1928 were plumbers, one a high school teacher and one a chiropractor It was brought out that the company's medical adviser did not know how to measure the radioactive substance which was said to be an ingredient of its products, nor did he know its name or identity The commission held that the company's representations were calculated to mislead the public into buying its products for treatment of diseases in preference to products of competitors

Society News.—The nineteenth annual session of the International Association of Industrial Accident Boards and Commissions will be held in Columbus, Ohio, September 26-30 Medical questions to be discussed include "Common Hazards in Industry," Dr Emery R Hayhurst, Columbus, "What Determines Compensability of Skin Disease Among Industrial Workers," Dr Carey P McCord, Cincinnati, "The Traumatic Head Case," Dr Fred B Harrington, Weirton, W. Va, and "Functional Neuroses Their Nature and Relation to Injury," Dr George T. Harding, Jr, Columbus——J. P. Kobrzynski, D D S, Chicago, was elected president of the Polish Medical and Dental Association of America at the annual session in Wilkes-Barre, Pa, August 20 Drs Peter F Czwalinski and John A Czachorski, both of Chicago, were elected secretaries The next annual session will be held in Chicago in August, 1933——Dr Frederick C Warnshuis, Grand Rapids, Mich, was elected president of the Aero Medical Association at its annual meeting in Cleveland, September 4, and Dr Albert M Mitchell, Terre Haute, Ind, vice president ——Dr John P O'Connell, Chicago, was elected president of the International Association of Police and Fire Surgeons and Medical Directors of Civil Service Commissioners at its annual convention in Montreal, September 10 The 1933 session will be held in Chicago——The Frisco Railway Surgeons' Association will hold its annual meeting, November 14-15, in Memphis, Tenn——The American Academy of Physical Therapy will hold its annual meeting at the Hotel Walton, Philadelphia, October 12-14

Bequests and Donations.—The following bequests and donations have recently been announced.

National Jewish Hospital, Denver, $10,000 by the will of Mrs Jeannette D Beaumont

William Crispe Hospital, Plainwell, Mich, $35,000 by the will of Mrs Katherine Havens

Stanford University Medical School, San Francisco, $12,000 by the will of the late Dr Agnes Walker

Germantown Dispensary and Hospital, Philadelphia, $10,000 by the will of Mrs Katharine F Aschenbach, Germantown

Institute for the Crippled and Disabled, New York, $10,000, New York Infirmary for Women and Children, $500, and Babies' Hospital, New York, $2,500, by the will of Mrs Adele G Schiff

Vanderbilt University School of Medicine, Nashville, Tenn, $1 ‹00 for the purchase of radium, it is reported, by the heirs of the late Mrs. Leslie Warner

Passavant Memorial Hospital, Chicago, $25,000 by the will of Mrs. A P Chard

Children's Hospital, Columbus, Ohio, $1,000 by the will of the late Mrs Ella I Baker

Pennsylvania and Women's Homeopathic hospitals, Philadelphia, $10 000 each by the will of John T Morris who died in 1915 The bequests were held in trust until the death of his sister, which occurred in January

Flushing Hospital, Flushing L I, $10,000, and Trudeau Sanatorium, Trudeau, N Y, $5,000 by the will of the late Lomax Littlejohn

Christ Hospital, Jersey City, N J, $25,000, and Nassau Hospital, Mineola, N Y, $10,000 by the will of the late Mrs May Brady Harriman

Presbyterian Hospital, Chicago, $10,000 under the will of the late Martin A Ryerson

Lenox Hill Hospital $25 000, New York, and the United Hospital Fund, $10,000 under the will of Heinrich F F Sandhagen

Mansfield General Hospital, Mansfield, Ohio, $2,500 from the estate of the late Mary P Weldon

Presbyterian Hospital and Woman's Hospital, New York, $15,000 each Lincoln Hospital School for Nurses New York, Trudeau Sanatorium, Trudeau, N Y, $10,000 each under the will of the late Mrs Emma B Kennedy

Jewish Hospital, Brooklyn, $1,000 under the will of Mrs Pauline May

New York Society for the Relief of the Ruptured and Crippled, St Mark's Hospital, Lutheran Hospital, Stuyvesant Square Hospital and the Home for Incurables, all of New York, $9,015 each under the will of Mrs Amelia Walter

Presbyterian and University hospitals and Woman's Hospital of Philadelphia, $5,000 each under the will of Miss Margaret Dornan

Michael Reese and Mount Sinai hospitals, Chicago, $5,000 each by the will of Henry Friend

Report of United Fruit Company.—Malaria, influenza, venereal disease and injuries were the most frequent causes for hospitalization among the 73,251 employees of the United Fruit Company and the 76,640 other persons dependent on the company for medical facilities, according to the twentieth annual report of the company's medical department During 1931, 22,782 patients were treated in the company's ten hospitals in Central and South America and Cuba There were 1,062 deaths The total death rate for employees was 8 88 per thousand, pneumonia was the cause of the largest number, 168 Of the hospital admissions, 4,918 were for malaria, 1,440 for influenza, 1,179 for venereal diseases and 1,400 for injuries inflicted by firearms, instruments and falls A strenuous campaign against malaria since 1926 has resulted in a decrease from 218 hospital admissions per thousand employees in that year to 79 in 1931 Ninety-one deaths were due to malaria in 1931 A total of 55,803 persons were examined in malaria surveys made during the year and the blood specimens of 7,713, or 13 8 per cent, were found to be positive Although influenza caused the second highest morbidity rate, the cases were distributed throughout the company's divisions and there was no actual epidemic The high incidence of injuries is partly ascribed to a revolution in Honduras, 61 of the 118 deaths from this cause occurred in the Truxillo division alone There were 224 cases of typhoid and paratyphoid, the greatest number being reported from Santa Marta, Colombia, where polluted water caused an epidemic of 82 cases with 19 deaths In addition to patients in hospitals, 373,699 treatments were administered at dispensaries and 12,793 persons received medical attention aboard steam-ships or in ports. The fact that two severe cases of infectious jaundice among a number of mild cases in Santa Marta, Colombia, late in 1930 bore a notable resemblance to yellow fever led to an investigation in cooperation with the Rockefeller Institute. Definite results have not been obtained and the investigation is still in progress. Dr. Roland C. Connor, New York, became manager of the medical department in 1931, succeeding Dr. William E. Deeks, who died, July 24, 1931.

Government Services

Army Personals

Major Henry W. Meisch, relieved at Fort McPherson, Georgia, and assigned at Chilkoot Barracks, Alaska; Major Josiah B. Henneberger, relieved at Madison Barracks, New York, and assigned for duty in the Panama Canal Department; Major Joseph C. Breitling, relieved at Chilkoot Barracks, Alaska, and assigned at Fort Missoula, Montana; Major Baxter R. Hunter, on completion of present tour of foreign service, is assigned at Fort Howard, Maryland; Col. Thomas S. Bratton, having attained the age of 64 years, August 10, his retirement from active service is announced; Major Fielding T. Robeson, Fort Slocum, New York, has proceeded to his home to await retirement, for the convenience of the government; Col. Herbert C. Gibner, relieved at Letterman General Hospital, San Francisco, and assigned in the Hawaiian Department; Major Charles G. Sinclair, relieved at New York and assigned in Hawaiian Department.

U. S. Public Health Service

Passed Asst. Surg. Homer L. Skinner, relieved at Savannah, Ga., and assigned at U. S. Marine Hospital, New Orleans; Asst. Surg. Russell Thomas, relieved at Boston and assigned at U. S. Penitentiary, Lewisburg, Pa.; Asst. Surg. Mason V. Hargett, relieved at Washington, D. C., and assigned at marine hospital, New York; Asst. Surg. Robert S. Baylor, Jr., relieved at New York and assigned to the marine hospital, Cleveland; Passed Asst. Surg. G. G. Holdt, relieved at Ellis Island, N. Y., and assigned at Toronto, Canada; Senior Surg. Grover A. Kempf, relieved at Vienna, Austria, about September 1, and assigned to duty in office of American Consul, Berlin, Germany; Senior Surg. George Parcher, relieved at Warsaw, Poland, about September 10, and assigned at the U. S. Marine Hospital, Stapleton, N. Y.; Surg. Peter J. Gorman, relieved at Glasgow, Scotland, about September 1, and assigned at the American Consulate, Hamburg, Germany; Passed Asst. Surg. Paul A. Neal, Jr., relieved at Palermo, Italy, about September 1, and assigned at the American Consulate, Naples; Surg. John M. Lowrey, relieved at Naples, Italy, about October 1, and assigned at the U. S. Marine Hospital, Baltimore; Surg. Herbert M. Manning, relieved at Stuttgart, Germany, September 1, and assigned at the American Consulate, Warsaw, Poland; Passed Asst. Surg. Maurice A. Roe, relieved at Hamilton, Canada, September 1, and assigned at Yarmouth, Nova Scotia. The following persons were recently promoted and commissioned as surgeons in the regular corps of the public health service: Walter G. Nelson, Calvin C. Applewhite, Roy E. Bodet, Frank V. Meriwether and Albert E. Russell.

Change of Station in the Navy

Lieut. Cecil L. Andrews from navy hospital, Boston, to navy station, Guam; Comdr. Clarence W. Ross from navy hospital, Pearl Harbor, T. H., to navy hospital, Mare Island, Calif.; Lieut. John M. Woodard from navy station, Guam, to navy hospital, Mare Island, Calif.; Lieut. Comdr. Edward L. McDermott from submarine base, Coco Solo, C. Z., to navy hospital, League Island, Philadelphia; Lieut. Thenton D. Boaz from marine barracks, Quantico, Va., to the Asiatic Station; Lieut. Bruce E. Bradley from the naval hospital, New York, to the Asiatic Station; Lieut. John N. C. Gordon from the Norfolk Naval Hospital, Portsmouth, Va., to the Asiatic Station; Lieut. Robert D. Crawford, Jr., from the navy yard, Washington, D. C., to the Asiatic Station; Lieut. Gerard B. Creagh from the naval hospital, Parris Island, S. C., to the Asiatic Station; Lieut. Comdr. Morton D. Willcutts from the naval training station, Great Lakes, Ill., to the marine detachment, Peiping, China; Lieut. Charles V. Hatchette has submitted his resignation, effective November 30.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 27, 1932.

Poisoning by Yew Tree Leaves

An inmate of Maudsley Hospital met his death in a manner which was new to the authorities. He was an insurance company secretary, aged 26, who was admitted as a voluntary patient for a nervous breakdown. On the lawn in front of the veranda where he slept was a yew tree, and a considerable quantity of the leaves were found in his alimentary canal. At the inquest Dr. Creed, pathologist, said that the man's normal behavior, the fact that he had a meal before his collapse, suggested that he was not aware of the danger of yew tree leaves, which might not be unpleasant to the palate. The quantity found in his stomach was not consistent with casual chewing. Dr. Tennent, deputy medical superintendent of Maudsley Hospital, asked by the coroner why the big tree was not removed, replied that he did not know that it was a yew tree. He knew the yew tree as a shrub but was not aware that it grew to such a size. If he had known, he would have had it cut down. None of the medical staff knew that it was a yew tree. Evidence was given that the man was cultivating the habit of chewing leaves to supersede the habit of smoking, which he had told his wife he would give up. The coroner said that it was a most unusual case. The man was getting better and wrote cheerful letters to his wife. It did not seem that he intended to commit suicide. The jury returned a verdict of accidental death with a rider to the effect that all bushes, shrubs and trees like the yew should be removed from grounds to which mental patients had access.

A second death has occurred in London within a fortnight from an insane person eating yew leaves. The second death was of a woman, aged 63, at the Springfield Mental Hospital, Tooting. The assistant medical officer stated at the inquest that yew trees had been in the grounds over thirty years but had now been destroyed. The jury expressed the opinion that yew trees and other poisonous plants should be removed from hospitals to which mental patients have access. It is strange that while the danger of mental patients eating yew leaves has been long pointed out in works on toxicology, these London institutions should have permitted them to grow in their grounds.

The Action of Rays on the Skin

Sir Leonard Hill, the physiologist, has made the curious observation that the prickly sort of heat felt on facing an electric fire is notably relieved on bringing close to the face an incandescent lamp screened by a sheet of glass. The one set of rays antagonizes the action of the other on the skin. The effect is not observed if a sheet of gelatin or cellophane is used as a screen. He also finds that the rays from an electric fire or dark source of heat, by acting on the skin reflexly, cause congestion of the nose and a feeling of stuffiness in those who have a deflected septum and some nasal obstruction. Those with unobstructed noses may be made sensitive by obstruction produced by a nose clip. The rays from an incandescent lamp also counteract these "nose closing" rays, and in this case the counteracting rays may act on a part of the skin other than that irradiated by the electric fire. Cooling the face prevents the nose closing effect. Hence the importance of ventilation of rooms with cool air. The skin when wet from perspiration is protected from the "nose closing" rays, and the vapor arising from a bowl of water set in front of an electric fire has the same protective influence. Glass absorbs most of the "nose closing" rays and lets the "nose opening" ones through. The latter belong to a group between about 20,000 and 30,000 angstroms, in the region of the short infra-red rays. Such sources of heat as the open fire or modern gas fire are pleasant because they give off enough of those beneficent rays.

The Biology of Human Nature

In a lecture on the biology of human nature, delivered at the recent meeting of the British Medical Association, Prof. Julian Huxley showed his power once again as an original thinker. He emphasized the importance of man's variability as a species. Nature tended to an enormous multiplication of species with little variation within each, but in human evolution two factors had operated to produce a result quite different from elsewhere —mass migration, which kept on bringing the variants into contact, and the fact that tradition more than structure or instinct regulated human behavior. As a result of constant migration, the divergent groups of men had never succeeded in becoming isolated physiologically. By virtue of interbreeding between migrant members, single groups came to throw up a much greater range of types, owing to Mendel's law, than would a wild species, and this produced further curious consequences. It meant that there must always remain a residuum of incomprehensibility between different members of society. The tough-minded could never really understand the tender-minded; the moron could never appreciate the philosopher, or vice versa. With a mind impelling him toward unity, political and social, man could not help generating diversity.

PARIS

(From Our Regular Correspondent)

Aug. 10, 1932.

The Complex Origin of Hematemesis

Addressing the Société des médecins des hôpitaux de Paris, Messieurs René A. Gutmann and Michel Demole reported the results of the examination of 100 patients sent to the hospital on account of hematemesis. To simplify matters, they eliminated the cases of melena. Among the hundred patients, the authors found only nineteen cases of stomach ulcer and three cases of cancer of the stomach. Hematemesis in patients with appendicitis or cholecystitis, with or without perivisceritis, is well known, and the authors emphasize its frequency. In six cases they found mild hepatic conditions, alcoholic cirrhosis and hepatic syphilis. After the elimination of a number of rare causes, such as benign tumors and gastric syphilis, there remained twenty-one cases in which no research and no exploration enabled them to establish a diagnosis; these were possibly connected with blood disorders, of vascular or splenic origin, and all little known. These cases show that one should not, in the presence of a hemorrhage of digestive origin, think solely, as is usually the case, of an ulcer or a cancer. The statistics direct attention to hemorrhages due to secondary gastric disorders (appendicitis, cholecystitis), and emphasize the importance, in the genesis of hemorrhages, of dyscrasic factors as yet but imperfectly understood.

Diaphoresis Induced by Pilocarpine in the Treatment of Influenza

Before the Société des médecins des hôpitaux de Paris, an address of Dr. Monnerot-Dumaine was presented by Dr. Jean Troisier, which tends to restore to honor the use of diaphoresis in the treatment of various infections, a practice among the laity, the traditions of which date back to the time of Hippocrates. The practice survived for many centuries in ancient medicine, taking on the form of administration of copious hot decoctions and the wrapping of the patient in heavy woolen blankets. It is still in vogue among many primitive peoples as a means of combating intoxication, poisonous stings, and the like. Monnerot-Dumaine endeavored to use a more scientific method by resorting to hypodermic injections of pilocarpine salts. The effects, he states, were remarkable in the treatment of influenza. A simple uncomplicated inflenza at the start, even though associated with fever, usually yields to the heavy perspiration brought about by the injection of pilocarpine hydrochloride. Influenza that is well advanced, and even associated with some bronchitis, often clears up within twenty-four hours following such an injection. If the pilocarpine does not induce a heavy perspiration, the influenza is not at all affected. In that case, heavier doses of the alkaloid should be tried. The results and the mode of utilizing this method in complicated influenza, infantile influenza and influenza in the aged remain to be determined. If the favorable influence of the diaphoresis induced in influenza is confirmed, the author suggests that the method might be extended to other infections. These observations are interesting, but one must not forget that pilocarpine is not merely a sudorific and salivatory agent but affects also the sympathetic nerve and has a complex action on the heart and the lungs, for which reasons it must be administered with extreme care. But these facts do not detract from the therapeutic value of the induced diaphoresis, which has probably been unjustly discarded.

Personal

Mr. Edward Tuck, an American citizen, has been accorded the title (only rarely bestowed) of "honorary citizen of Paris," awarded by the municipal council of the capital. Having settled many years ago in France with his wife, he has never ceased —aided by his wife—to give evidence in many ways of his attachment for the country of his adoption. He has spent lavishly his large fortune in philanthropic works. He created at Rueil, near Paris, during the war, a large admirably equipped hospital, which has become, since the war, an old people's home, which is supported entirely at his expense. A magnificent art collection that he had spent many years in assembling he presented, on the death of his wife, to the city of Paris. It occupies several rooms of the Petit-Palais, on the Champs Elysées. Mr. Tuck had already been accorded the highest rank in the Legion of Honor, and was the holder of the "grande médaille d'or" of the city of Paris.

Mr. George Blumenthal, a citizen of the United States, has been awarded the title of Grand Officer of the Legion of Honor. This distinction, rarely accorded to foreigners, is in recognition of the many philanthropic works carried out in favor of France by Mr. Blumenthal and his wife, Florine Blumenthal, and particularly the construction of modern pavilions in the hôpitaux de Paris, for which he has expended large sums.

Deaths

At the Academy of Medicine, the death of W. W. Keen of Philadelphia, who was a foreign associate member of this society, was officially announced, and a short sketch of his life and works was presented by Professor Hartmann.

Dr. Charles Abadie has died at the age of 90. He was the Nestor of the French ophthalmologists. Reared in Bordeaux, he became, in 1868, intern in the hôpitaux de Paris and thereafter soon acquired for himself a preeminent position in his chosen specialty. He published numerous works, the most important of which dealt with trachoma, glaucoma, the various forms of atrophy of the optic nerve, and the like. He was the first to employ to a wide extent in France, in spite of the opposition of the syphilologists, intravenous injections of mercuric cyanide in numerous diseases of the eye. Having an active mind and a wide literary culture, he preserved in his extreme old age the use of his intellectual powers and his working energy. Only two years ago, he presented, before the Academy of Medicine, a remarkable communication on the medical treatment of glaucoma.

Dermatitis from Wrist Watch

In the *Annales de dermatologie*, Dr. Dubois calls attention to two peculiar cases of dermatitis caused in women by the wearing of wrist watches. Both patients observed a roundish red spot of regular appearance about the size of the wrist watch, and located at the point of application of the watch. In one of the women, the eruptive manifestation was more acute. An erythematous, squamous disk, roundish and somewhat infiltrated, could be observed. The surface, which was oozing slightly, was dotted with small, clear vesicles and crusts. The lesion yielded in three weeks to treatment with calming pastes. The cause of the dermatitis was an idiosyncrasy toward nickel, a thin coating of which covered the steel case of the watch. Such instances are rare, when it is considered what a large number of women wear such watches, which originated in Geneva. Moreover, the parents and two sisters of one of the patients wore these watches without any inconvenience. The lesions in the cases cited appeared about a week after the watches were first put on. To verify the diagnosis, a nickel twenty-five centime piece was fastened to the wrist; a week later, the cutaneous reaction appeared.

BERLIN

(From Our Regular Correspondent)

Aug. 8, 1932.

Expenditures for Food and Luxuries in the Families of Workmen

In a work recently published by the Federal Bureau of Statistics, "Die Lebenshaltung von 2,000 Arbeiter-, Angestellten- und Beamtenhaushaltungen," will be found highly interesting and valuable researches for the estimation of the financial condition of workmen, employees and petty officials in Germany. These statistics cover the period from March 1, 1927, to Feb. 29, 1928, and comprise records of 2,000 families (896 workmen, 546 employees and 498 petty officials) that kept careful records of their receipts and expenditures according to a definite questionnaire. The selection of the families was made in such a manner that the various sections of the *reich,* and the most important industrial groups and occupations, were represented. The large cities were given preference (80 to 87 per cent); the cities of middle size came next (12 to 20 per cent), while only a few small towns were represented.

Only married persons were considered. The average number of children (under 15 years of age) grows with the income in all three groups and does not become lower other than in the uppermost ranges (among employees and officials), which may be easily explained by the differences in the ages of the persons concerned. Moreover, in the families of the workmen the numbers are greater than in the families of the employees and of the officials, although the differences are not very marked, for the number in the families of workmen, employees and officials ran as follows: 4, 3.6 and 3.8, respectively.

On studying the incomes of the three groups in relation to the expenditures, it was found that the average annual income of the workmen was $863.25, $1,121.46 for the employees, and $1,273.30 for the officials. A comparison of the use of income in the three groups, divided according to the amount of income into five grades, reveals that in all groups the expenditures for food head the list, being proportionally highest among the workmen, in whose case they amount to 42 per cent of the total expenditures in the lowest income class, and with rising income drop comparatively rapidly, so that in the group of workmen with the largest income they amount to only 35.7 per cent, whereas in the case of employees and officials with still larger incomes they decline to 27.5 per cent.

The average protein consumption rises from the lowest to the highest income class (in all three groups) about 20 per cent, chiefly owing to the increase in the consumption of animal foods, whereas the consumption of vegetable protein is about the same in all three groups—or may be less among the officials. On an average, more animal protein than vegetable protein is consumed, which complies with physiologic demands. Also the total daily consumption of protein is in general satisfactory. Only in the two lowest income classes of the workmen does the protein consumption possibly fall below the minimum requirements. Likewise the number of calories demanded by the physiologist appears to be fully reached, among the employees and officials, by the amount of food ingested, whereas in the lowest income classes of the workmen there is a slight deficit. The expenditures for luxury articles of consumption, especially alcoholic beverages, appear rather high. The amounts expended per family run as follows: among the workmen, 104 liters of beer, 1.8 liters of brandy, 8.5 liters of wine, the annual cost of which was $20.08; among the employees, 77 liters of beer, 2.5 liters of brandy, 10.5 liters of wine, the annual cost of which was $20.07; among the officials, 79.5 liters of beer, 2.4 liters of brandy, 12.7 liters of wine, the annual cost of which was $21.61. In point of fact, the average consumption of alcoholic beverages in Germany for the aforementioned period was considerably larger, as is expressly emphasized in the statistics. It may be assumed, therefore, that the families considered in this scrutiny were more abstemious than the average. In any event, the consumption of alcoholic beverages was rather large, whereas the expenditures for "education" were considerably less than for alcoholic beverages and tobacco.

The Requirements for Recognition as a Specialist

It is only natural that, with the perfection of diagnostic and therapeutic methods and the recognition of special branches of medicine, physicians should devote themselves to certain specialties. At first there was the differentiation "general practitioner," "surgeon" and "obstetrician." Further differentiation brought the ophthalmologist, the laryngologist, the rhinologist, the otologist, the gynecologist, the dermatologist, and many others. Many of the early specialists acquired the right to be regarded as such by virtue of special talent widely demonstrated in a certain field of medicine. They had been general practitioners, but, on discovering their talent and liking for a more restricted practice, they had devoted themselves more and more to that practice and with such success that they decided to confine themselves entirely to that field. At a later period, many claimed the right of announcing themselves as specialists by reason of having served for varying lengths of time as assistant to a well known and recognized specialist in a given branch of medicine. Still later, patients made the acquaintance of the so-called six weeks specialists, who had taken a short course somewhere and then sought out a location as "specialist." In view of these loose conditions, the medical profession of Germany launched, a number of years ago, a campaign to bring about that no physician be permitted to announce himself as a specialist in a given branch of medicine until he had demonstrated that he actually possessed special ability in that field. At first, however, no suitable way of demonstrating the possession of special ability in a chosen field was discovered. Neither the medical profession nor the governmental authorities took kindly to the suggestion that would-be specialists be required to subject themselves to a special examination, which if successfully passed would entitle them to a specialist's diploma and would authorize them to practice their chosen specialty. On the other hand, the medical profession proposed and adopted a set of criteria or regulations on the basis of which German physicians might recognize a colleague as a specialist, and which provided further that the term "specialist" should be restricted to definitely recognized branches of medicine. These criteria have been revised and amplified, and, as they now stand, they state the varying periods of time that are considered the minimum necessary for training in the various specialties and what kind of special training appears suitable. On the basis of documentary evidence submitted, the local medical organization decides whether a petition for recognition as a specialist in a given branch of medicine shall be approved. In case the petition of an applicant is rejected, he may take a final appeal to the "chamber physicians" (*aerztekammer*) having jurisdiction in the region in question.

It took some time before the new procedure for the recognition of specialists was accepted and put into practice by the medical organizations, but it may be vehemently declared that, the more consistently it has been applied, the more feasible it has been proved to be. According to the regulations governing at present the admission of panel physicians to practice in the *krankenkassen*, or health benefit associations, no specialist will be recognized who has not been approved by a competent medical organization.

The following specialties have been definitely recognized as such: surgery, diseases of women and obstetrics, orthopedics, diseases of the eye; diseases of the throat, nose and ear; diseases of the skin and genital diseases, urology, nervous and mental diseases, roentgenology and light therapy; diseases of the teeth, jaws and mouth (in addition, license as dentist required); internal medicine (including nervous diseases), diseases of the stomach and intestine and disorders of metabolism (disorders of the respiratory tracts), and children's diseases (only children under 14 years of age; treatment [including consultations] of adults is positively prohibited). These specialists must confine themselves, in the main, to their specialty and to consultative office hours and institutional service; that is to say, they may make house calls only in emergencies and must avoid anything like the ordinary domiciliary practice of the general practitioner.

The period of special training required of applicants for admission as "specialist" varies with the specialty, being at least four years for surgery, gynecology, obstetrics and internal medicine, and three years for the remaining branches. The announcing of oneself as a specialist in more than one branch or for branches other than those named will not usually be permitted; exceptions are, for example, surgery and orthopedics, surgery and gynecology, if the preliminary training is adequate, covering at least six years. It may be said now, after the regulations have been in operation for a few years, that these criteria have proved their value and have clarified to a great extent a previously bad situation.

RIO DE JANEIRO

(From Our Regular Correspondent)

July 15, 1932.

Vaccination Against Yellow Fever

Dr. H. de Beaurepaire Aragão, head of the Instituto Oswaldo Cruz, recently published an article on the prevention of yellow fever by means of immunizing vaccines. Although the problem has been discussed ever since the time of Pasteur, it was not until recently that it was more clearly understood and later made practical. In the first attempts at immunization, the vaccines were prepared by killing the yellow fever virus (present in the organs of Macacus rhesus previously infected with yellow fever) with solution of formaldehyde. Later, chloroform, glycerin and phenol (carbolic acid) were used, instead of formaldehyde, as agents to kill the virus, without impairing its immunizing properties. But the immunity conferred by the formaldehyde vaccines was not lasting. In a review of the entire problem, it was found that the failure of the vaccines to lead to the development of antibodies was due to the use of a killed virus in the preparation of the vaccine and that, by preparing the vaccines either with a living virus of an attenuated virulence or with a virus previously neutralized by a certain technic, lasting immunity is obtained. Immune serum (that is, the blood serum of men who have had yellow fever or of a Macacus rhesus monkey that survived an experimental infection) has a protective action which prevents the development of the disease, as proved by the lack of any reaction in normal men or monkeys that are given an injection of yellow fever virus after a previous injection of immune serum. De Beaurepaire Aragão succeeded in obtaining lasting immunity in Macacus rhesus by the inoculation of 2 cc. of blood serum of either convalescents or monkeys that had been immunized by the injection of 1 cc. of blood which contained yellow fever virus of great potency. The animals that received the injection did not show any general or local serious reactions, either after the immunizing vaccine or later, when a new injection of 0.1 cc. of yellow fever virus was given to them. The immunity thus conferred proved to be present even six months later. The same satisfactory results were obtained when the technic was slightly modified, by making the two injections (that of immune serum and that of virus) simultaneously, thus shortening the time of the procedure. Shortly after the method of the vaccination was reported, several laboratories in which yellow fever work is done confirmed its value. Findlay and Hindle reported their results in Macacus rhesus (*Brit. M. J.* **1**:740 [May 2] 1931; abstr. The Journal, July 18, 1931, p. 210). Shortly after, Sawyer, Kitchen and Lloyd reported satisfactory results in vaccinating human beings against yellow fever with immune serum and virus fixed in mice (*Proc. Soc. Exper. Biol. & Med.* **29**:62 [Oct.] 1931). Immunization was obtained in ten persons by the injection of a mixture of immune serum and living virus, after a previous injection of serum from convalescents. The blood serum from those persons acquired the power to protect Macacus rhesus against yellow fever, thus proving the acquired immunity of the individuals. Sellards and Laigret reported satisfactory results in vaccinating five persons (*Compt. rend. Acad. d. Sc.*, May 2, 1932). The authors injected the persons to be immunized with a living virus of yellow fever, fixed for mice only. It has been proved that the virus provokes an infection of an attenuated virulence in Macacus rhesus and probably also in man (although one should remember that three instances have been reported of benign but typical yellow fever infections of laboratory origin through the virus in white mice). The basic principle of the vaccination is the use of a living virus. Up to the present, there have been four methods of vaccination, the results of which should be compared so as to choose the one that may give the best results.

Coexistence of Vincent's Angina and Diphtheria

Dr. Mangabeira Albernaz recently read a paper before the Sociedade de Medicina e Cirurgia of the city of Campinas in the state of São Paulo, on the coexistence of Vincent's angina and diphtheritic angina, which is rare. The author warns against confusing the association of these two forms of angina with those cases in which one form only is present but in which the etiologic agents of both forms are present. The speaker believes that the clinical diagnosis is more important than the microscopic diagnosis. The microscopic diagnosis is of great value as a confirmation of the results of the clinical diagnosis. If the angina improves under the effect of the serum or of local bismuth treatment, this proves that there is not a true association of the two forms of angina even though the examination has shown the presence of the etiologic agents of both forms. That is the reason why the benign ambulatory forms of both diphtheria and fusospirochetosis are spontaneously cured. The only thing that proves the simultaneous existence of the two diseases is the presence of the different types of false membranes. The membranes in diphtheria are continuous, pale yellow, adherent and with loose lateral edges. The membrane in fusospirochetosis is dark, is fragile, and exists only for a short period of the disease. In cases in which the coexistence of the disease is well proved, the treatment must be mixed: serum in large amounts and local bismuth treatment. The treatment gives good results because in cases in which the two diseases coexist there is a reciprocal action of the virulence of the two etiologic agents. The author reports three cases in which both diseases were present and in which the diagnosis was made by the clinical examination and confirmed by the laboratory tests.

CAPE TOWN

(From Our Regular Correspondent)

July 29, 1932.

The Medical Congress

The twenty-sixth South African Medical Congress was held last month at East London. Although the attendance was small, largely owing to the fact that so many medical men who can afford to leave their practice have gone overseas to attend the centenary meeting of the British Medical Association in London, the meeting was one of the most successful held since the war. The opening address by Sir Carruthers Beattie, vice chancellor of the University of Cape Town, attracted considerable attention, dealing as it did with the much discussed topic of overcrowding of the profession and of the medical schools in this country. Sir Carruthers is of the opinion that South Africa should have many more physicians than it has at present. He pointed out that in some parts the proportion was one physician to fifty thousand patients, and that our annual wastage was at present not compensated for by our annual number of graduates, but that we still have to import medical men from abroad. The address has been much discussed, and it is safe to say that Sir Carruthers' view is not that held generally, the consensus being that, in both urban and rural areas, medical practice holds out so little that is attractive that new comers are to be discouraged. Some also think that the medical schools have reached the limit of their usefulness, as there is not enough clinical material. This argument is on the face of it absurd, for both Cape Town and Johannesburg have populations that are large enough to provide ample clinical material for teaching purposes provided it is properly organized. At present much of this material is wasted because it is not coordinated with the university classes, with the result that few students are aware of its value. At Cape Town, for example, much of the polyclinic work, which in continental centers is regarded as so valuable an adjunct in teaching, is in charge of specialists who do not teach and is rarely seen by the students. There is little doubt that Sir Carruthers' address has stimulated discussion and may lead to important developments in the near future. The Medical Association of South Africa has appointed a special committee to consider, generally, the medical curriculum and the provision made for medical teaching at our two universities, and this committee will be in close cooperation with the standing committee on insurance and medical practice.

Among the many interesting papers read at the congress was one read before the Section of Public Health by Dr. Laidler of East London. His subject was the interrelation between European and native ill health, and he showed how the neglect to provide adequate medical service for our native and Negro population reacts on the white community. The paper was remarkable for its careful and detailed analysis of vital statistics and for the broad generalizations that were made. It led to a vigorous discussion, the final result of which was that congress passed a resolution urging the government to take a native census, since without proper statistics it is impossible to arrive at any definite conclusions on many points of great importance.

THE MEDICAL ASSOCIATION OF SOUTH AFRICA

At the congress the Medical Association of South Africa held its triennial election of executive officers. Dr. Orenstein, who for six years has served as its president and who did not offer himself for reelection, retires in favor of the vice president, Dr. Sandes of Cape Town. Dr. Sandes is one of the senior surgical specialists in the union, a lecturer on surgery at the University of Cape Town, and an old member of the old South African Committee of the British Medical Association. In his place, as vice president, was elected Sir Spencer Lister, the director of the Medical Research Institute at Johannesburg, while on the executive committee are Sir Edward Thornton, Dr. Orenstein and Dr. Moffat of Cape Town.

THE NEW MEDICAL OFFICER OF HEALTH FOR THE UNION

The medical officer of health for the union, Dr. Mitchell, retired this year, and has been succeeded by the second in command at the department, Sir Edward Thornton. Sir Edward is an old public health officer who has had considerable experience with health work in the native territories. He did excellent service in the late war, organizing hospital services both here and in France; for his work at the front he received the honor of knighthood. On his return from active service he was appointed director of medical services to the union defense force, an important post which he has since held in conjunction with his official post as assistant medical officer of health for the union. In his new capacity as medical officer of health he is both chief public health official and the administrative head of his department, as he is also secretary of public health.

Eruptive Fevers of the Typhus Group

Considerable attention is being paid by Cape and Natal pathologists to certain types of fever that are becoming increasingly common. There is still much doubt as to what category these fevers should be grouped into, but it is generally agreed that they present points of close clinical similarity to typhus. Wicht of Cape Town and Ross of Rhodesia, who have both devoted considerable time and attention to the serologic study of these fevers, are of opinion that they closely approach the Mexican tabardillo in one group and the tsutsugamushi disease of Japan. Conor and Bruch described similar syndromes in Algeria, but in those days the Weil-Felix reaction was not known. In South Africa, similar types of fevers have been described since 1911. Clinically they closely resemble typhus, but before the development of the typical rash the patients do not present symptoms that are diagnostic of the condition, so that the three most characteristic features of the disease have to be carefully looked for. These are the primary ulcer, due to the bite of the vector, whatever it may be, the temperature chart curve, and the rash itself. The rash mimics that of measles; indeed, in children it is often mistaken for that disease, especially as it appears on the fourth day after the patient has shown signs of feverishness and malaise. It is present on the mucous membranes of the nose and mouth as well as on the skin. Treatment so far has been purely symptomatic. Ross and Wicht incline to the view that the disease is carried by fleas, but that opinion is not shared by some pathologists, who consider that this form of typhus is merely tick bite fever, such as is well known and has been frequently described. There seems no doubt, however, that the condition does present differences from ordinary tick bite fever and that in this country we have to do with three distinct forms of typhus, one carried by lice, one by ticks and a third by some parasite of the rat, most probably a flea.

Protein Shock in the Treatment of Dementia Paralytica

Laubscher of the Valkenburg Mental Hospital has studied the results of the treatment of dementia paralytica by protein shock, tryparsamide and tartro-quiniobine in a series of cases not specially selected. He contributes to the *South African Medical Journal* an interesting summary of his observations, together with the case histories. His study deals with fourteen cases. Eight were social recoveries. Three patients who died showed Herxheimer reactions after recovery. Five remained unimproved, one of whom died at the beginning of treatment, and one improved both mentally and physically. The shock treatment was in the form of 10 cc. of milk given intramuscularly, followed, six hours later, by 1 Gm. of tryparsamide in 5 cc. of distilled water injected intravenously.

Marriages

William Joseph Morginson, Wheeling, W. Va., to Miss Elizabeth Jane Eitzen of California, Mo., September 6.

Perk Lee Davis, Philadelphia, to Dr. Margaret Henderson Shumway of Bryn Mawr, Pa., September 4.

Harold Charles Lueth, Chicago, to Miss Elizabeth Adelaide Bullock of Oak Park, Ill., September 3.

Forrest Le Roy Stratton, Kilgore, Texas, to Miss Karna May Billberg of Nowata, Okla., September 2.

Elbert Lapsley Persons, Durham, N. C., to Miss Helen Hopkinson Coles of Summit, N. J., June 11.

Charles H. White, Fenton, Mich., to Miss Bess N. Knowles of Detroit, June 25.

W. L. Weber, Philadelphia, to Miss Anna Ruth Bialy of Collingswood, N. J., May 25.

Don Shelley Benson, Elm Grove, W. Va., to Miss Gwen Kirker of Wellsburg, June 2.

Edmund Ralph Carman, New Lenox, Ill., to Miss Elsa Friday of St. Louis, June 11.

Louis C. Barrette to Miss Muriel Bradford, both of Sacramento, Calif., August 15.

Walter A. Brussock to Miss Cheryl Miller, both of Milwaukee, September 1.

J. Frank Maurer, Brazil, Ind., to Miss Susan Delbrook of Indianapolis, July 20.

Jacob Pomerantz to Miss Mollie Orloff, both of Philadelphia, August 14.

Joseph W. Kelso, Oklahoma City, to Mrs. Elsie E. Carter, July 20.

Meyer Zeltzer, Erie, Pa., to Miss Esther Bergoon, recently.

Deaths

Theodore August Hoch, Northampton, Mass.; University of Michigan Medical School, Ann Arbor, 1900; member of the Massachusetts Medical Society, American Psychiatric Association and the New England Society of Psychiatry; assistant professor of psychiatry, Tufts College Medical School; medical superintendent of the Northampton State Hospital; aged 53; died, August 4, of hemorrhage due to duodenal ulcer.

Edwin Page Bledsoe, Sykesville, Md.; College of Physicians and Surgeons, Baltimore, 1905; served during the World War; superintendent of the Springfield State Hospital; formerly superintendent of the Arkansas State Hospital, Little Rock, and medical officer in charge of the U. S. Veterans' Hospital, North Chicago, Ill.; aged 51; died, August 11, in Baltimore.

Andrew Samuel Moorhead, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1906; fellow of the American College of Surgeons; served with the Canadian army during the World War; at one time demonstrator in clinical surgery at his alma mater; formerly on the staffs of the Toronto General and the Wellesley Hospital; aged 55; died, July 31.

John Jacob Conzett, Auburn, N. Y.; Miami Medical College, Cincinnati, 1899; member of the Medical Society of the State of New York; veteran of the Spanish-American and World Wars; medical school inspector; aged 58; died, August 9, in the Auburn City Hospital, of empyema of the gallbladder, chronic hepatitis and paralytic ileus.

Harris L. Cookingham, Red Hook, N. Y.; Albany (N. Y.) Medical College, 1871; member of the Medical Society of the State of New York; past president of the Dutchess County Medical Society; formerly president of the school board, postmaster and health officer; aged 81; died, June 28, in a hospital at Rhinebeck.

Jacob J. Entz, Wichita, Kan.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; at one time member and epidemiologist to the state board of health; for seven years health officer of Marion County; formerly on the staff of the State Hospital, Norton; aged 68; died, June 29.

Hugh Boyd, Scottsboro, Ala.; Memphis (Tenn.) Hospital Medical College, 1899; member of the Medical Association of the State of Alabama; past president of the Jackson County Medical Society; served during the World War; aged 51; died suddenly, August 6, of angina pectoris.

Joseph Frederick Terriberry, New York; Bellevue Hospital Medical College, New York, 1880; formerly on the staffs of the Hospital for the Ruptured and Crippled and the Manhattan Eye, Ear and Throat Hospital; aged 75; died, July 28, at his summer home in Canaan, Conn.

Charles Melvin Ericsson, Gowrie, Iowa; State University of Iowa College of Medicine, Iowa City, 1905; member of the Iowa State Medical Society; for many years member and president of the school board; aged 60; died, July 29, in the Lutheran Hospital, Fort Dodge.

***George Gordon Campbell**, Montreal, Que., Canada*; McGill University Faculty of Medicine, Montreal, 1889; formerly clinical professor of dermatology at his alma mater; for many years on the staff of the Montreal General Hospital; aged 68; died, June 26.

George S. Stone, Fort Myers, Fla.; University of Maryland School of Medicine, Baltimore, 1890; member of the Florida Medical Association; past president of the Lee County Medical Society; on the staff of the Lee Memorial Hospital; aged 63; died, June 1.

James Monroe Dampeer, Crystal Springs, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1892; member of the Mississippi State Medical Association; formerly member of the state board of health; aged 64; died, July 14.

Robert Eben Hearne, Paducah, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1901; member of the Kentucky State Medical Association; served during the World War; aged 56; died, July 28, of carcinoma of the liver.

Charles L. Scott, Sanford, N. C.; University of Maryland School of Medicine, Baltimore, 1897; member of the Medical Society of the State of North Carolina; served during the World War; aged 56; died, July 26, of sarcoma of the spine.

Everett J. Stewart Scofield ⊕ Danbury, Conn.; University of North Carolina School of Medicine, Chapel Hill, 1908; formerly health officer of Danbury; for fifteen years on the staff of the Danbury Hospital; aged 52; died, July 16.

Charles William Aitkin, Flemingsburg, Ky.; Medical College of Ohio, Cincinnati, 1880; member of the Kentucky State Medical Association; for many years bank president; aged 72; died, August 10, of streptococcic meningitis.

Eli Nichols ⊕ Wilmington, Del.; University of Pennsylvania School of Medicine, Philadelphia, 1915; on the staff of the Delaware Hospital; aged 43; died, July 25, in the Johns Hopkins Hospital, Baltimore, of chronic myocarditis.

William Morrison Robinson, Jersey City, N. J.; University of Georgia Medical Department, Augusta, 1908; on the staff of the Greenville Hospital; aged 47; died, May 27, in Danville, Va., of a self inflicted bullet wound.

John Hill Focht ⊕ Shamokin, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1921; formerly proprietor of a hospital bearing his name; aged 40; was found dead, August 9, of illuminating gas poisoning.

Edith Mackay Ross, Winnipeg, Manit., Canada; Manitoba Medical College, 1913; member of the Associated Anesthetists of the United States and Canada; on the staff of St. Boniface (Manit.) Hospital; aged 43; died, May 13.

Marcus Bradford Carleton, Wooster, Ohio; Medical Department of the University of the City of New York, 1881; for many years a medical missionary in India; aged 76; died, July 24, in Xenia, of heart disease.

Henry Adams Waldron ⊕ Newburgh, N. Y.; Albany Medical College, 1877; aged 77; on the staff of St. Luke's Hospital, where he died, August 1, as the result of injuries received in an automobile accident.

Charles Carlisle Conser ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1900; associate professor of physiology at his alma mater; aged 56; died suddenly, August 6, of heart disease.

Oliver Brewster Babcock, Springfield, Ill.; St. Louis Medical College, 1879; aged 75; died, August 6, in the Decatur-Macon Hospital, Decatur, of heart disease, pulmonary edema and cerebral hemorrhage.

Ernest H. Madajesky, Ironwood, Mich.; College of Physicians and Surgeons, Chicago, 1899; member of the Michigan State Medical Society; formerly a druggist; aged 61; died, July 20, of cerebral hemorrhage.

Rollin Guy Hendricks, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1903; on the staff of the Indianapolis City Hospital; aged 54; died, July 24, of hypernephroma of the right kidney.

John Morgan Holloway, Jersey City, N. J.; New York Homeopathic Medical College and Hospital, 1893; member of the Medical Society of New Jersey; aged 63; died, July 31, in Sparta; of heart disease.

Frank Robert Maxwell, Martinsville, Ind.; Medical College of Indiana, Indianapolis, 1895; served during the World War; aged 60; died, July 10, in St. Vincent's Hospital, Indianapolis, of heart disease.

Lucius L. Ball, Muncie, Ind.; University of Buffalo School of Medicine, 1889; member of the Indiana State Medical Association; aged 82; died, July 22, of chronic urinary sepsis and prostatic hypertrophy.

Elmer P. Blankenship, Houston, Mo.; St. Louis University School of Medicine, 1909; also a druggist; served during the World War; aged 56; died, July 10, of uremia and cirrhosis of the liver.

Silas O. Kimbro, Monticello, Ark.; University of Nashville (Tenn.) Medical Department, 1906; member of the Arkansas Medical Society; aged 52; was found dead in his office, July 17, of heart disease.

Alden Edwards Martin, Hackettstown, N. J.; Hahnemann Medical College of Philadelphia, 1876; at one time mayor; formerly member of the board of health; aged 84; died, July 7, of myocarditis.

George R. Christian, Indianapolis; Medical College of Indiana, Indianapolis, 1897; member of the Florida Medical Association; aged 62; died, August 9, in St. Vincent's Hospital, of heart block.

Frank Pierce Johnson, St. Louis; Cleveland Medical College, 1877; member of the Missouri State Medical Association; aged 81; died, July 19, in the St. Louis County Hospital, of heart disease.

Zolley B. Ferrell, Parkersburg, W. Va.; Chicago College of Medicine and Surgery, 1916; aged 48; died, April 9, in the City Hospital of embolism, following an operation on the gallbladder.

Jean Henriette Celce, Holyoke, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1892; member of the Massachusetts Medical Society; aged 62; died, July 30, of septicemia.

Samuel H. Blakely, Severance, Kan.; Louisville (Ky.) Medical College, 1875; also a druggist; aged 82; died, July 23, in the Methodist Episcopal Home for the Aged, Topeka, of senility.

John Frederick Shrontz, Martinsburg, Ohio; Physio-Medical Institute, Cincinnati, 1877; formerly member of the county school board; aged 82; died, July 26, of cerebral hemorrhage.

John H. Carson, Vancouver, B. C., Canada; Medical College of Indiana, Indianapolis, 1892; aged 70; superintendent of the Provincial Home for Incurables, where he died, May 17.

Patrick John Kelly, Patton, Pa.; Medico-Chirurgical College of Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; aged 56; died, July 23, of pneumonia.

Frank Lisle Rose, Brooklyn, Mich.; University of Michigan Medical School, Ann Arbor, 1886; formerly health officer of Saginaw County; aged 74; died, July 15, of heart disease.

Harry Francis Bailey, Monongahela, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1912; served during the World War; aged 46; died, July 14, of pneumonia.

Leland Carson McIntosh, Henderson, N. C.; Atlanta College of Physicians and Surgeons, 1913; served during the World War; aged 53; died, July 14, of chronic encephalitis.

George Leo Helms, Los Angeles; Medical Department of the University of California, 1895; aged 60; died, June 8, in the Stockton (Calif.) State Hospital, of cerebral hemorrhage.

Joseph Brewer Blades ⊕ Independence, Kan.; Kansas City Medical College, 1905; on the staff of the Mercy Hospital; aged 56; died, July 25, in Madison, Wis., of arteriosclerosis.

Frederick Carlyle Hyatt, Greensboro, N. C.; Jefferson Medical College of Philadelphia, 1907; aged 47; died, July 28, at Waynesville, of cardiovascular renal disease.

Joseph M. Hartranft, Southold, N. Y.; Hahnemann Medical College of Philadelphia, 1879; formerly health officer of Southold; aged 74; hanged himself, July 19.

Otto F. Fischer ⊕ St. Louis; Missouri Medical College, St. Louis, 1895; aged 60; died, July 13, in a hospital at Oshkosh, Wis., of a ruptured esophageal varix.

Wilbur Aaron Griffith, Coldwater, Mich.; Keokuk (Iowa) Medical College, 1898; served during the World War; aged 64; died, June 27, of chronic myocarditis.

Le Roy Pence, Lima, Ohio; Medical College of Ohio, Cincinnati, 1882; aged 76; died, July 10, in the Lima City Hospital, of cardiovascular renal disease.

John Hedges, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1901; aged 59; died, August 8, of chronic endocarditis and myocarditis.

Charles Ballance Holmes, Silver City, Miss.; Louisville (Ky.) Medical College, 1885; aged 68; was accidentally drowned, July 21, while fishing.

Alva Guy Thomas, Salt Lake City, Utah; Indiana University School of Medicine, 1917; aged 42; was found dead, July 21, of a gunshot wound.

Harriet Hodges Cobb, Cambridge, Mass.; Boston University School of Medicine, 1878; aged 93; died, July 11, in Medway, of arteriosclerosis.

George Westgate Mills, Medford, Mass.; Harvard University Medical School, Boston, 1879; aged 79; died, July 27, at Lexington, of heart disease.

Jack Hamilton Evans, Sault Ste. Marie, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1924; aged 35; was drowned, June 27.

Joshua Mearne Wardell ⊕ Cadillac, Mich.; University of Michigan Medical School, Ann Arbor, 1873; aged 77; died, August 1, of heart disease.

Deas Murphy, Litchfield, Conn.; Dartmouth Medical School, Hanover, N. H., 1897; aged 73; died, July 16, of carcinoma of the prostate.

Clyde Scott Roath, North Little Rock, Ark.; California Eclectic Medical College, Los Angeles, 1915; aged 55; was shot and killed, August 7.

John Johnson Fitzsimmons, Calcutta, Ohio; Starling Medical College, Columbus, 1895; aged 64; died, June 20, of poison, self administered.

Seaver Zerah Fisher, Brooklyn; Miami Medical College, Cincinnati, 1878; Civil War veteran; aged 87; died, July 9, of cerebral hemorrhage.

Buford R. Lancaster, Lakeland, Ky.; Cincinnati College of Medicine and Surgery, 1876; aged 79; died, July 20, of cerebral hemorrhage.

Edwin J. Turner, Columbus, Ga.; Flint Medical College of New Orleans University, 1902; aged 56; died, July 16, of acute myocarditis.

Henry Charles Wendel, Cincinnati; Miami Medical College, Cincinnati, 1894; aged 63; died, July 25, of acute dilatation of the heart.

James Henry Miller, Zanesville, Ohio; Leonard Medical School, Raleigh, N. C., 1911; aged 60; was drowned, July 27, while swimming.

George Wilson Lovan, Morton's Gap, Ky.; Kentucky School of Medicine, Louisville, 1892; aged 64; died, July 26, of heart disease.

George Washington Miller, Brockport, N. Y.; Detroit Medical College, 1871; aged 87; died, July 26, of senility and arteriosclerosis.

William Charles Davis ⊕ Chicago; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 73; died, July 13, of myocarditis.

Harvey Lee Starkey, Wood River, Neb.; Barnes Medical College, St. Louis, 1899; aged 67; died, July 16, of chronic myocarditis.

George Edwin Bill, Harrisburg, Pa.; Harvard University Medical School, Boston, 1880; aged 78; died, July 28, of angina pectoris

S. D. Sluyter, Wolcott, Ind.; Kansas City Hospital College of Medicine, 1885; aged 75; died, July 24, of diabetes mellitus.

Perry F. Shaffer, Jacksonville, Fla.; Eclectic Medical Institute, Cincinnati, 1888; aged 65; died, July 20, of heart disease.

John Logan Brubaker ⊕ Deshler, Ohio; Toledo Medical College, 1898; aged 60; died, May 10.

Edward W. Boyd, Atlanta, Ga.; Atlanta Medical College, 1894; aged 56; died, July 13.

Bureau of Investigation

ADULTERATED OR MISBRANDED PHARMACEUTICALS

A List of Some of the Notices of Judgment Issued from July, 1931, to June, 1932, Inclusive, by the Food and Drug Administration, U. S. Department of Agriculture

[For many years, the Bureau of Investigation has published in this department, brief abstracts of Notices of Judgment issued by the Food and Drug Administration of the United States Department of Agriculture against "patent medicines." The number of proprietary preparations of this type that each year are found misbranded or adulterated is so large that these abstracts have to be published frequently.

The same officials that deal with cases of adulteration and misbranding in proprietary package medicines also, of course, act to protect the public against adulterated or misbranded official pharmaceuticals. As most official products are made by reputable pharmaceutical houses, the number of cases of adulteration or misbranding in this particular group is small compared with cases in the "patent medicine" group. For this reason, the Bureau of Investigation has made a practice of abstracting each year such Notices of Judgment as have been published by the government during the previous calendar year. In The Journal for June 25, this year, there was published a list of the Notices of Judgment issued during the first half of 1931, dealing with pharmaceuticals. We now present a list of similar notices issued from July, 1931, to June, 1932, inclusive. These are arranged alphabetically by products. First is given the name of the product, then follows the name of the manufacturer, shipper, or consigner; finally the number of the Notice of Judgment and the date of issue. It is to be borne in mind that the dates of publication of the Notices of Judgment are always several months later than the date of seizure of the product.]

Acetphenetidin Tablets.—Syracuse Pharmacal Company, Inc., Syracuse, N. Y. *(N. J. 18195; October, 1931.)*

Aconite Tincture.—Sharp and Dohme, Philadelphia. *(N. J. 18726; May, 1932.)*

Almond Oil.—Yglesias and Company, Inc., New York City. *(N. J. 18474, March, 1932; 18975, June, 1932.)* R. Fabien and Company, Inc., New York City. *(N. J. 18960; June, 1932.)*

Caffeine Citrated Tablets.—Syracuse Pharmacal Company, Inc., Syracuse, N. Y. *(N. J. 18195; October, 1931.)*

Chloroform.—No manufacturer's or shipper's name given. *(N. J. 18201; October, 1931.)*

Cinchophen Tablets.—C. E. Jamieson and Company, Detroit. *(N. J. 18308; January, 1932.)* Elmira Drug and Chemical Company, Elmira, N. Y. *(N. J. 18454; March, 1932.)*

Corrosive Sublimate Tablets.—Elmira Drug and Chemical Company, Elmira, N. Y. *(N. J. 18454; March, 1932.)*

Ergot.—Imported from Hamburg, Germany; name of importer not given. *(N. J. 18029; July, 1931.)* F. W. Berk and Company, Inc., New York City. *(N. J. 18189; October, 1931.)* J. L. Hopkins and Company, New York City. *(N. J. 18216; October, 1931.)*

Ergot, Fluid Extract.—John Wyeth and Bros., Inc., Philadelphia. *(N. J. 18304, January, 1932; 18466, 18520, March, 1932; 18957, June, 1932.)* Hance Bros. and White, Inc., Philadelphia. *(N. J. 18489; March, 1932.)* Sharp and Dohme, Baltimore. *(N. J. 18668; May, 1932.)* Upjohn Company, Kalamazoo, Mich. *(N. J. 18659; May, 1932.)* Allaire Woodward and Company, Peoria, Ill. *(N. J. 18662; May, 1932.)*

Ergot of Rye.—F. W. Berk and Company, New York City. *(N. J. 18333; January, 1932.)*

Ergot Solution.—Abbott Laboratories, North Chicago, Ill. *(N. J. 18536; March, 1932.)*

Ether.—Mallinckrodt Chemical Works, St. Louis, Mo. *(N. J. 18026, July, 1931; 18182, 18186, 18199, 18219, October, 1931; 18373, 18394, 18399, February, 1932; 18683, 18750, May, 1932; 18965, June, 1932.)* Merck and Company, Rahway, N. J. *(N. J. 18027, 18039, 18050, July, 1931; 18185, October, 1931; 18316, 18318, 18330, January, 1932; 18355, 18358, 18370, 18374, 18380, 18382, 18385, 18391, 18398, February, 1932; 18459, 18463, 18467, 18478, 18480, 18495, 18511, March, 1932; 18664, 18672, 18736, May, 1932.)* American Solvents and Chemical Corporation, Albany, N. Y. *(N. J. 18033, 18046; July, 1931.)* J. T. Baker Chemical Company, Phillipsburg, N. J. *(N. J. 18383, February, 1932; 18510, 18538, March, 1932; 18673, May, 1932; 18964, June, 1932.)* New York Quinine and Chemical Works, Brooklyn. *(N. J. 18389, February, 1932; 18694, May, 1932; 18945, 18963, June, 1932.)* General Chemical Company, Philadelphia. *(N. J. 18469, 18471, March, 1932.)* Rossville Commercial Alcohol Corporation, Mechanicsville, N. Y. *(N. J. 18692, May, 1932.)*

Ginger, Fluid Extract.—Jordan Bros., New York City. *(N. J. 18322, 18323, January, 1932; 18488; March, 1932; 18691, May, 1932.)* Richard Ray (Emerson Medicine Company), Kansas City, Mo. *(N. J. 18367; February, 1932.)*

Magnesium Citrate Solution.—National Magnesia Company, Brooklyn. *(N. J. 18361; February, 1932.)*

Malt Extract with Yerba Santa.—Trommer Company, Fremont, Ohio. *(N. J. 18519; March, 1932.)*

Nitroglycerin Tablets.—Syracuse Pharmacal Company, Inc., Syracuse, N. Y. *(N. J. 18195; October, 1931.)* Elmira Drug and Chemical Company, Elmira, N. Y. *(N. J. 18454, March, 1932.)*

Sodium Nitrite Tablets.—C. E. Jamieson and Company, Detroit. *(N. J. 18308; January, 1932.)*

Strychnine Sulphate Tablets.—Elmira Drug and Chemical Company, Elmira, N. Y. *(N. J. 18454; March, 1932.)*

Valerian Tincture.—Jordan Bros. Company, Brooklyn. *(N. J. 18533; March, 1932.)*

Correspondence

NEUROSES IN MAN AND ANIMALS

To the Editor:—Dr. Schilder, in writing on "The Somatic Basis of the Neurosis" (*J. Nerv. & Ment. Dis.* **70**:502 [Nov.] 1929), has discussed a portion of my work on conditioned reflexes in which I have produced what I have called neuroses. The author admits that "we can find all the phenomena of the neuroses." Such a statement from a competent source I, of course, greatly appreciate. But I must strenuously object to the statements of the author relating to the comparative studies of neuroses in man and in animals. The author says: "These important experiments of Pavlov and his school can be understood only if we look upon them in the light of our experiences in the neuroses. We cannot interpret the neurosis by means of the conditioned reflex, but by means of the psychic mechanisms we have studied in the neurosis we can certainly very well interpret what takes place in a conditioned reflex."

What is the meaning of the term "interpretation" or "understanding"? It is generally understood to mean an analysis of a more complex phenomenon in terms of more elemental and simple phenomena. Accordingly, the neuroses in man must be interpreted or understood, that is, analyzed, with the help of studies of neuroses in animals, which are naturally more simple, and not by the reverse procedure.

In man, it is first of all necessary to determine exactly wherein the deviation of behavior from the normal lies in the case concerned, for there is indeed a wide variation normally in the behavior of different people. And then one should search together with the patient, or apart from him, or even against his resistance, amid the chaos of affairs vital to him, for connections, conditions and situations that have acted at once or slowly, and with which perhaps the origin of the abnormal deviation may be justifiably linked—that is, for the origin of the neurosis. Moreover, it is necessary to understand why these conditions and situations have brought about such results in the patient, when in another person they would occur without the slightest effect; and, furthermore, why they all lead in the case of one person to just such an abnormal complex, while in another to a totally different one. I am taking only the principal group of points, omitting the vast range of those of more special nature.

But all this so far is only a part of the matter, if one undertakes a full and complete analysis of it. Of course, the change in behavior that is observed in a patient comes from a change in his nervous system. Who now will deny that? And so, an answer is still required to the question: How and why did the changes in the normal processes of his nervous system take place and of what sort were they, under the circumstances indicated?

Are not all these requirements real? And where are all these requirements satisfied?

With what does one deal in the dog? First of all, one sees that neuroses are possible to obtain and without difficulty, if only one has an animal in whose make-up there is not a proper balance between its fundamental reactions of nervous activity—as yet not further analyzed physiologically—that is, between the excitatory and inhibitory processes. This occurs either in an animal in which there is a marked predominance of excitatory processes over inhibitory, so that it is unable to exert *complete* inhibition over its actions when the situation demands it (excitatory type), or else in another in which, on the other hand, excitatory processes are so weak that the animal is often inhibited beyond proper limits, which is also inconsistent with the demands of life (inhibitory type).

Further, with such an experimental animal it is definitely known that this insufficient balance, peculiar to the make-up of the particular animal, finally breaks down under certain fundamental conditions. This happens mainly under three conditions, three circumstances. Either extremely strong stimuli in the nature of conditioned stimuli are used in the place of those that are only weak or moderately strong and which ordinarily determine the animal's activity; i. e., its excitatory processes are overstrained. Or the animal is required to exert a very strong or a very protracted inhibition; i. e., its inhibitory processes are overstrained. Or, finally, a conflict between both these processes is produced; i. e., conditioned positive and negative stimuli are applied one right after the other. In all these cases with the proper animal there develops a chronic disturbance of the higher nervous activity, *a neurosis*. The excitatory type loses almost completely its ability for any inhibition and generally becomes unusually excited; the inhibitory type, though hungry, refuses even to eat under the influence of the conditioned stimuli and generally becomes exceedingly ill at ease and also passive with the least change of its surrounding environment.

One can conceive in all likelihood that, if these dogs which have become ill could look back and tell what they had experienced on that occasion, they would not add a single thing to that which one would conjecture about their condition. All would declare that on every one of the occasions mentioned they were put through a difficult test, a hard situation. Some would report that they felt frequently unable to refrain from doing that which was forbidden and then they felt punished for doing it in one way or another, while others would say that they were totally, or just passively, unable to do what they usually had to do.

And so, what my associates and I have found with our animals is elemental physiologic phenomena—is the limit of physiologic analysis (in the present state of knowledge). At the same time it is the prime and most fundamental basis of human neurosis and serves as the truest interpretation and understanding of it.

Hence in the case of man, under the complications of his existence and with his many different reactions to it, when it comes to analysis and to the ultimate aim of curing him, one always has to face the very difficult question: "What circumstances in his life are excessively strong for the nervous system in question, where and when has he encountered a conflict intolerable for him, requirements that he become active and requirements that he hold himself back?

How in the opinion of Dr. Schilder could the innumerable subjective experiences of the neurotic patient under the extreme complexity of human higher nervous activity, as compared with dogs, give anything useful in the way of an explanation of the elementary neuroses of animals, when those experiences are only different variations of one and the same physiologic process, which is seen in dogs very distinctly?

Of course, for the final physiologic analysis of the problem of neuroses and psychoses there remain a number of undecided questions. Is it possible to produce neuroses in cases of well balanced nervous systems? Is the initial unbalance of the nervous system a primary phenomenon: i. e., an innate property of the nervous tissue itself, or a secondary one depending on some innate peculiarity of other systems of the organism apart from the nervous system? Do there not exist along with the innate properties of the nervous system also other conditions in the organism which determine this or that degree of normal function of that system?

I am busy at the present time with some of these questions and already have some material at hand for their decision.

It stands to reason that, apart from these special questions which concern the general problem of disorders of normal nervous activity, there remains before the physiologist the question relating to the physicochemical mechanism of these very elemental nervous processes: of excitation and inhibition, of their relationship, and of excessive strains on them.

I. P. Pavlov, Leningrad, Russia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POISONOUS LACQUERS ON CHILDREN'S TOYS

To the Editor:—1. Is there a censorship of lacquers to cover and decorate children's toys? 2. Are lacquers containing such pigments as chrome yellow or chrome green regarded or disregarded as dangerous to the average child who occasionally puts a toy in his mouth? 3. Is there much lead poisoning from placing lacquered toys in the mouth?

Louis E. Bernheisel, M.D., West Collingswood, N. J.

Answer.—1. So far as is known, the elimination of lead coating for toys has been brought about by the agreements between manufacturers rather than by actual laws or regulations. In addition, the cost of lead is sufficiently higher than other useful coatings to favor the use of lead substitutes.

2. Inorganic chrome yellow is lead chromate; chrome orange is lead chromate plus varying proportions of lead oxide. Chrome green is chrome yellow mixed with prussian blue. These inorganic pigments are toxic. However, organic pigments frequently retain the name of earlier existing inorganic pigments. For example, organic chrome orange is a paranitrobenzene-azo-salicylic acid preparation. Organic pigments of this type are usually less toxic than the constituents used as intermediates. A preferance for stained toys is expressed rather than those so thickly coated that the paints may chip off and be ingested or lodge in the throat.

3. It is almost impossible to determine the extent of lead poisoning caused by the placing of toys in the mouth by children. This is due to the fact that small children, at least, are prone to place in their mouths flakes of paint picked off baseboards or dropped from walls or ceilings. Although cribs and childrens' furniture may not be coated with lead-bearing paints, full sized beds may be so finished. It is the general impression that lead poisoning of infants from toys is relatively infrequent and on the wane.

In every city, under present economic conditions, many toys are being reclaimed through such agencies as are attempting to increase employment. In addition, other unemployed individuals are engaged in making and peddling toys and novelties. Toys from these sources, rather than from standard manufacturers, are more likely to be the source of lead poisoning.

PURINES AND ACID PRODUCING FOODS

To the Editor.—Diet is attracting more attention in treatment, and the present tendency is to give a fairly high protein diet for Bright's disease, avoiding as far as possible purines, which I take as meaning practically the same as foods with an acid ash. I am puzzled over the question of eggs. In The Journal, March 3, 1923, page 647, eggs, butter, milk and cheese are classed as nonpurine. R. W. Wilcox (Treatment of Disease, 1919, p. 275) put these in the same category. On the other hand, William R. Warner & Company, Inc., in the "Calendar of Medical History," 1931, sixth page from the end, put eggs under acid producing foods, egg yolk being put as 26.69 per cent (exceeded only by oysters, 30 per cent). In the pamphlet issued by a proprietary house the same figures are used, and in The Journal, Jan. 11, 1930, page 141, eggs are classed under acid producing foods. Another company in its list does not seem to mention eggs under alkali producers. I would also like to know whether tomatoes tend to acidify or alkalize the urine. Please omit name.

M.D., Canada.

Answer.—The term "Bright's disease" should no longer be used unless the specific type of renal involvement is considered. The disease involving the parenchyma of the kidneys is an entirely different disease from nephrosis or from what is now termed nephrosclerosis. Nephrosis is a degenerative process of the tubules, and nephrosclerosis is a disease of the smaller arteries and arterioles of the kidneys. In the former disease a low protein diet has been used for years because it is in this disease that the blood shows a retention of nitrogen products. However, at a recent meeting of the American Association of Physicians, McCann of Rochester, N. Y., showed some case reports in which a higher protein diet was apparently not at all harmful. In nephrosis, a high protein-low fat diet is indicated. However, in nephrosclerosis, usually associated with hypertension and generalized cardiovascular disturbances, the therapeutic indications for diet are based on the cardiovascular complications rather than on the kidneys.

Purines are certainly not "practically the same as foods with an acid ash." A purine-free diet is indicated in gout, and because the purines are nucleoproteins they are not advised in glomerular nephritis. The best study of the relative acid-alkaline content of foods is the one by Sherman and Gettler. In their tables eggs are classified as acid-producing food on the basis of 11.1 per cent per hundred. Egg white is 5.24 per cent and egg yolk 24.69 per cent. On the other hand, eggs do not contain purine bodies. Practically all vegetables and fruits except cranberries, prunes, rhubarb and plums are alkali producing foods.

APHTHOUS STOMATITIS

To the Editor.—A single woman, aged 27, has aphthous stomatitis, which occurs more often at the menstrual period than at any other time. Otherwise she is well. Any cauterant aggravates, causing considerable inflammation in the surrounding tissue. Can you suggest any plan of treatment? Please omit name.

M.D., New York.

Answer.—The diet should be bland and should contain plenty of milk and spinach. The bowels should move regularly without excessive irritation from laxatives. Irritation of the mouth by strong tooth pastes, tooth powders or mouth washes should be avoided. Some calcium preparation should be given in adequate dosage for a week or more before the expected menstrual period. Of the lactate, given by mouth, from 3 to 5 Gm. should be taken after each meal, best with an equal amount of lactose dissolved in hot water.

DIGESTIBILITY OF EGGS

To the Editor.—Will you kindly inform me as to the comparative digestibility of hard and soft boiled eggs. Is the taking of raw eggs of any advantage? This question concerns a normal stomach. Is there any pathologic entity in which a hard boiled egg is preferable to a soft boiled or raw egg? Please omit name.

M.D., New York.

Answer.—Although there are many prejudices and opinions on the question of the way in which eggs should be cooked, the consensus seems to be that cooking does not radically interfere with the food value. Apparently the method of cooking does influence the speed of digestibility and perhaps to a lesser extent the appetite. Eventually, however, eggs in any form are well digested and absorbed no matter how cooked. An article entitled "Digestion in the Normal Human Stomach of Eggs Prepared in Different Ways," by R. J. Miller, H. L. Fowler, Olof Bergeim, M. E. Rehfuss and P. B. Hawk (*Am. J. Physiol.* **49**:254 [July] 1919) is the authority for the following statements: Soft boiling or poaching of eggs results in easier digestibility than either hard boiled or raw eggs. The raw white well beaten is also easily digested. The whole egg and hard boiled eggs are probably the most resistant to digestion. The only advantage in the taking of raw egg would be in connection with the egg albumin, which when given alone can be utilized in large amounts. There is an old practice among certain physicians of allowing ulcer patients to have a hard boiled egg at their bedside during sleep in case they are awakened by pain. A well masticated bite of the egg is supposed to relieve the pain.

SIMPSON MODIFICATION OF GILLIAM OPERATION FOR RETROVERSION

To the Editor.—Kindly inform me as to the steps of the Simpson modification of the Gilliam operation for retroverted uterus.

Eugene C. Lowe, M.D., Miami, Fla.

Answer.—After the peritoneal cavity has been opened, a ligature is passed about each round ligament about 1½ inches from the uterus, the ends of the ligatures being left long. Each is now separately threaded into a large pedicle needle and led through a small opening in the anterior surface of the broad ligament anterior to and just below the point where the ligature is located. By means of the pedicle needle, the ligature is carried between the leaves of the broad ligament and along the anterior abdominal wall just under the peritoneum until near the outer edge of the rectus abdominis muscle. Simpson then threaded the ligature on a full curved needle and carried it back into the peritoneal cavity, catching peritoneum, muscle and fascia, whereas Montgomery modified the procedure by carrying the ligature, and after it the round ligament, through the aponeurosis of the abdominal wall and fastened it there with chromic catgut.

WASSERMANN FAST SYPHILIS

To the Editor.—Recently I have had a patient under antisyphilitic treatment, a woman, aged 28, who had a chancre of the tongue when 6 years old. She has been treated since that time with arsenic, iodides and mercury and has always had a four plus Wassermann reaction. During this period of treatment she has had two rest periods of two years each. At the present time she has no superficial veins that can be used. Will you kindly advise me as to what form of treatment to use in this case and what I may expect from such treatment? Kindly omit name.

M.D., Oklahoma.

Answer.—It is apparent that this patient belongs to the so-called Wassermann fast type and that it would not be advisable to attempt to bring about a reversal of the positive Wassermann test by too intensive treatment. Intermittent medication with iodides by mouth and once or twice yearly a course of eight or ten injections of one of the standard bismuth or mercury preparations or sulpharsphenamine bismuth intramuscularly should be sufficient, provided there is no involvement of the central nervous system or of the cardiovascular mechanism. A serologic cure can hardly be expected in a long standing Wassermann positive case. A temporary reversal of the serologic reaction might be brought about by fever therapy.

DEATH FROM LIGHTNING, SUNSTROKE OR ANGINA PECTORIS

To the Editor.—A man, aged 41, apparently in good health, who had been shocking wheat, was found dead. His ears, neck and shoulders were mottled with apparent hemorrhages or stains of blood under the skin. The lips were blue. There was a cut on the back of the head, evidently from a fall. There was no evidence of fracture. The fingers were not clenched. There was no distortion in the face. The shirt was torn in back, his wife said that it was not torn before or at least when he put it on in the morning. The skin was mottled over the body in occasional spots similar to those on the ears, neck and shoulders. Was this man struck by lightning, as his people believe, or was it a coronary thrombosis? There were no evidences of a burn anywhere on his body. There were no trees in the vicinity. Please omit name.

M.D., Ohio.

Answer.—In some cases of death from lightning, no definite lesions have been found. In others there have been only small bluish or reddish spots and small hemorrhagic extravasations in the skin. There consequently is no reason at hand that could justify one in denying that death may have been caused by lightning. Appearances like those described are seen also in cases of death from sunstroke. It goes without saying that no opinion of any value may be ventured with respect to the suggestion that death may have been due to angina pectoris in the case in question.

MOLDY FOOD IN FOOD POISONING

To the Editor.—Are there any known evil effects of eating moldy food? E. L. Davis, M.D., Kijabe, Kenya Colony, East Africa.

Answer.—Moldy food has never been definitely implicated as a cause of food poisoning; that is, the products of the common molds (Penicillium, Mucor, Aspergillus) are not known to be toxic when swallowed. As is well known, certain species of Penicillium are habitually used for ripening Brie, Camembert and Roquefort cheese. Thom and Church (The Aspergilli, Baltimore, 1926, p. 89) cite experiments by Quevedo in South America made with a species of Aspergillus (A. maydis), which was thought by Quevedo to generate products toxic for horses and rabbits, but they add the comment: "The organism has not since been identified or studied in the light of more recent researches of forage poisoning. Until such repetition is possible, the results must now be regarded as questionable." The same authors also refer to more recent experiments in the Bureau of Chemistry, Washington, in which it was shown that grain inoculated with various species of Aspergillus and fed to horses and sheep over periods of from four to six weeks "failed to show evidence of toxicity itself or of infectivity due to the spores which filled the air which the animal breathed."

FACIAL TIC IN DOGS

To the Editor.—Our pet dog, on the day following contact with another dog that has had a unilateral facial tic for almost a year, developed a unilateral facial tic, which has persisted. Its onset was associated with a conjunctivitis of the eye of the same side of the face as the tic. Does there exist a contagious condition among dogs of this kind? If it is contagious, could human beings acquire it by close contact with such diseased dogs? Jacob A. Riese, M.D., West New York, N. J.

Answer.—Friedberger and Frohner, in their "Infective Diseases of Animals," make no mention of facial tic in dogs, nor does Moore in his "Pathology of Infectious Diseases of Animals." Medical literature does not contain any definite records of transfer from dog to man of any such condition as mentioned in the question.

USES OF YEAST

To the Editor.—Please advise me as to proper indications for the use of yeast, other than in the prevention and treatment of pellagra. What intestinal and skin diseases are benefited by its use? What contraindications exist? What are the differences in the effect of fresh yeast cakes and dried brewers' yeast? The popular mass advertising has caused much uncontrolled use of yeast. Please omit name and address.

M.D., Alabama.

Answer.—Aside from its value in vitamin deficiency and as a laxative, no other indications are definitely established. Its action in acne and furunculosis is so irregular as to be unpredictable. No contraindications have thus far been elaborated. There is no essential difference between the two forms of yeast mentioned.

SPECIFIC SENSITIVITY

To the Editor.—An unmarried school teacher, aged 40, comes to this locality each year and spends the summer. She complains that every summer, shortly after arriving, her face develops an intense itching and redness. She uses no soap or water on her face. The creams she uses were used before she came into the locality and caused no reaction. Her diet is not changed. She comes from Oregon, where redwoods and pines are common, to this locality where we have an abundance of oaks. In fact, a good part of the time she spends at a nearby farm where there are many oak trees. Physical examination, except for the diffuse maculopapular erythema of the face and a few papules on the outer aspects of both arms, is negative. Please suggest diagnosis and treatment. Please omit name.

M.D., Illinois.

Answer.—The problem here is not a simple one. It is apparent that the skin lesion is due either to external contact or to some food which the patient eats only in the summertime. The latter possibility can be readily ruled out by having the patient avoid such foods as corn, berries, cantaloup, watermelon and peaches. Contact dermatitis is more difficult to handle. The condition may be due to contact with some vegetation, as oak, primrose, grass or ragweed. Cases due to crysanthemum, tulip and others have been reported. It may also be due to contact with other substances, such as cosmetics, hair washes, lotions or furs. For contact dermatitis, the best method of determination is the contact or patch test, whereby the leaves or other substances to be tested are moistened and placed on a small square of gauze, applied to the back, covered with oiled silk, and held by two strips of adhesive plaster. If, when examined at the end of twenty-four, forty-eight or seventy-two hours, the areas show any redness, itching, or formation of vesicles, the reaction is considered positive. Many tests may be done at the same time.

To test for foods, the usual protein sensitization tests are indicated. They may give results or may fail. In any case they are to be checked by proper food elimination diets.

TREATMENT OF PULLED SHOULDER OR TRAUMA TO SHOULDER JOINT

To the Editor.—I have a patient, a girl, aged 12 years. Three or four years ago while in America she was crossing the street with her mother. An automobile had just passed and they did not see the oncoming car until right in front of it. To save her daughter the mother grabbed the girl by her left arm and threw her back out of the way of the car, which did, however, just strike her foot. The sudden strain on her arm so strained the ligaments that she feels her arm get out of place somewhat whenever she lifts or carries something a little heavy with that left arm. By pulling, the arm can be pulled out of its normal position for about an inch. What treatment would you suggest for the case? E. L. Davis, M.D., Kijabe, Kenya Colony, East Africa.

Answer.—The mother undoubtedly produced considerable trauma to the capsule of the shoulder joint, and possibly the circumflex nerve. This case corresponds with a subluxation almost like a mild, recurrent dislocation to the shoulder. It is sometimes spoken of as "pulled" shoulder. Some of these cases result in "snapping" shoulder.

In some of these cases the capsule of the shoulder joint is relaxed similarly to the condition seen in cases of poliomyelitis.

Recommendations include massage, contrast sprays, electrical stimulation, exercises, support for the shoulder to relieve gravity pull, and capsuloplasty, including imbrication of the capsule or quilting of the capsule.

In severe cases, suspension operations are indicated such as those described by Nicola and by Henderson.

FRACTURE OF CLAVICLE

To the Editor.—I have a patient who had a fracture of the right clavicle, the middle third. A T splint was applied for fourteen days, and then a figure-of-eight bandage. The union is good. However, a droop of the right shoulder developed. The callus is prominent. What is the prognosis? Will the callus be partly or totally absorbed? Kindly omit name.

M.D., Ohio.

Answer.—The callus will undoubtedly absorb sufficiently to preclude the necessity of operation. The droop of the shoulder is probably due to the traction on the brachial plexus caused by the weight of the arm. In most cases this can be avoided by wearing a sling for a few days in addition to the T splint.

BEDBUG INFESTATION

To the Editor.—Our Rod and Gun Club has a camp cabin infested with bedbugs. It is lined with tongue and grooved lumber but cannot be made air tight for fumigation. What is the best insecticide to use? When the clubhouse is closed this fall would it do any good to fumigate with cyanide gas? Any suggestions and plan for use would be greatly appreciated. Would you please answer at once? Please omit name.

M.D., Utah.

Answer.—Bedbug infestation in a camp cabin that is reasonably tight can be controlled, if not eradicated, by fumigation with hydrocyanic acid gas. Write the Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C., for Farmers' Bulletin 1670, which contains information as to procedure.

"JELLYFISH AND STINGING NETTLES"

To the Editor.—In the April 9 issue of The Journal, a question was asked regarding treatment of the bites of jellyfish, or so-called Portuguese man-of-war. My experience in the South is that the Portuguese man-of-war is a balloon shaped blue fish, the balloon apparently filled with air, with long tentacles about the size of twine and varying from 1 to 2 or 3 feet long. These tentacles in the water come in contact with a person and adhere to the skin, even wrapping around the arm or leg. Apparently there is an oil on these tentacles which, when it strikes the skin, causes excruciating pain and the part affected can readily be mapped out with welts where the tentacles have become attached. The best treatment I have found for this is, considering it an oil, immediate washing with any cleaning fluid or gasoline to dissolve the oil, then thorough scrubbing with any harsh soap, and then application of any lotion, such as calamine, to allay irritation of the skin. This is painful until the oil is washed from the skin; then the local irritation subsides in about a day.

There is a peculiar rash which appears on bathers at different times during the month of February and March in Southern waters, which has been attributed to the spawn of jellyfish, but as yet I have never known a jellyfish of the ordinary sort to bite. This skin irritation is treated locally by application of some skin lotion.

Charles C. Morrison, Jr., M.D., Bar Harbor, Maine.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology The examination *will be held in nineteen different cities in the United States and Canada,* Oct 22 Sec, Dr. Paul Titus, 1015 Highland Bldg, Pittsburgh

Arizona: Phoenix, Oct 3. Acting Sec, Dr. Jos M Greer, Professional Bldg, Phoenix

California. *Reciprocity* Los Angeles and San Francisco, Sept 21 *Regular* Sacramento, Oct 17 20 Sec, Dr. Charles B Pinkham, 420 State Office Bldg, Sacramento

Colorado Denver, Oct 4 Sec, Dr. William Whitridge Williams, 422 State Office Bldg, Denver

Connecticut *Basic Science* New Haven, Oct 8 Prerequisite to license examination Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

Idaho. Boise, Oct 4. Dir, Bureau of License, Mr F L Cruikshank, Boise

Illinois: Chicago, Oct 18 20. Supt of Registration, Mr Paul B Johnson, Springfield

Michigan. Lansing, Oct 11-13 Sec, Dr Nelson McLaughlin, 1010 Maccabee Bldg, Detroit

Minnesota *Basic Science* Minneapolis, Oct 4-5 Sec, Dr J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis *Regular* Minneapolis, Oct 18 20 Sec, Dr E J Engberg, 524 Lowry Medical Arts Bldg, St Paul

Montana Helena, Oct. 4 Sec, Dr S A Cooney, Power Block, Helena

Nebraska: *Basic Science* Lincoln, Oct 4-5 Dir, Bureau of Examining Boards, Mrs Clark Perkins, State House, Lincoln

New Jersey Trenton, Oct 18 19. Sec, Dr James J. McGuire, 1101 Trenton Trust Bldg, Trenton

New Mexico. Santa Fe, Oct 10 11. Sec, Dr P G Cornish, Jr, 221 W. Central Ave, Albuquerque

Tennessee Memphis, Sept 29 30 Sec, Dr Alfred B DeLoach, Medical Arts Bldg, Memphis

Wyoming. Cheyenne, Oct 3. Sec, Dr W H Hassed, Capitol Bldg, Cheyenne.

Vermont June Report

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports the written examination held in Burlington, June 22-24, 1932. The examination covered 12 subjects and included 90 questions An average of 75 per cent was required to pass. Twenty candidates were examined, all of whom passed. The following colleges were represented

College — PASSED	Year Grad	Per Cent
Tufts College Medical School	(1932)	83 2
University of Vermont College of Medicine	(1930)	78, (1931) 79 4, 85 7, (1932) 83 6, 84 5, 85 3, 86 3, 86 3, 86 5, 87 3, 87 6, 87 8, 88 1, 88 4, 88 4, 88 7, 88 7, 90 1 *

Dr. Nay also reports 7 physicians licensed by endorsement from April 14 to July 20, 1932. The following colleges were represented:

College — LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
State University of Iowa College of Medicine	(1929)	Iowa
University of Maryland School of Medicine	(1912)	Maryland
Tufts College Medical School	(1904)	New Hamp
Fordham University School of Medicine	(1917)	New York
Queen's University Faculty of Medicine	(1924)	Idaho
McGill University Faculty of Medicine	(1917)	Canada
Licentiate of the Royal College of Physicians and Surgeons, Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow	(1931)	Scotland

* No grade reported License being withheld

Kentucky June Report

Dr. A. T. McCormack, secretary, Kentucky State Board of Health, reports the written examination held in Louisville, June 8-10, 1932 The examination covered 11 subjects and included 110 questions Sixty-four candidates were examined, all of whom passed. The following colleges were represented:

College — PASSED	Year Grad	Per Cent
University of Arkansas School of Medicine	(1932)	81
Loyola University School of Medicine	(1932)	85
University of Louisville School of Medicine	(1931)	88, (1932) 79, 80, 82, 82, 82, 83, 83, 83, 83, 83, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 87, 87,* 88, 88, 88, 88, 88, 88, 88, 88, 89, 89, 89, 90, 91, 91, 91, 91, 92
Creighton University School of Medicine	(1932)	79, 83
University of Cincinnati College of Medicine	(1932)	87,† 88 †
University of Oklahoma School of Medicine	(1932)	85
Hahnemann Medical Coll and Hosp of Philadelphia	(1931)	82
University of Pennsylvania School of Medicine	(1931)	83
University of Tennessee College of Medicine	(1932)	85

Dr. McCormack also reports 5 physicians licensed by reciprocity with other states and 2 physicians licensed by endorsement from July 2 to Aug. 10, 1932. The following colleges were represented:

College — LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1930)	Louisiana
Emory University School of Medicine	(1931)	W. Virginia
State University of Iowa College of Medicine	(1911)	Iowa
Creighton University School of Medicine	(1931)	Ohio
University of Cincinnati College of Medicine	(1932)	Ohio

College — LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Louisville School of Med	(1925), (1931)	N B. M. Ex.

* Diploma withheld

† These applicants have received an M B. degree and will receive an M D degree on completion of an internship.

District of Columbia July Report

Dr. W C. Fowler, secretary, Commission on Licensure, District of Columbia, reports the written examination held in Washington, July 11-12, 1932. Twenty-eight candidates were examined, 27 of whom passed and one failed. The following colleges were represented:

College — PASSED	Year Grad.	Number Passed
College of Medical Evangelists	(1932)	1
Georgetown University School of Medicine	(1931, 5)	5
George Washington University School of Medicine	(1931, 12)	12
Howard University College of Medicine	(1931, 2)	2
Northwestern University Medical School	(1906), (1931)	2
Rush Medical [illegible]	(1922)	1
University of [illegible]	[illegible]932)	1
University of [illegible]	[illegible]930)	1
Royal Hungar[illegible] Budapest	[illegible],* [illegible]925)	2

College — FAILED	Year Grad.	Number Failed
Georgetown University School of Medicine	(1930)	1

Dr Fowler also reports 11 physicians licensed by reciprocity *with other states from Jan. 14 to July 18, 1932. The following colleges were represented:*

College — LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Georgetown University School of Medicine	(1908)	Connecticut
George Washington University School of Medicine	(1928)	New York,
	(1930)	Maryland
Howard University School of Medicine	(1929)	N Carolina
Johns Hopkins University School of Medicine	(1902)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons	(1929), (1930)	Maryland
University of Buffalo School of Medicine	(1923)	New York
Medical College of Virginia	(1929)	Virginia
University of Virginia Department of Med	(1907), (1924)	Virginia

* Verification of graduation in process.

Alabama July Report

Dr J N Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held in Montgomery, July 11, 1932. The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass. Ten candidates were examined, all of whom passed The following colleges were represented:

College — PASSED	Year Grad	Per Cent
University of Arkansas School of Medicine	(1931)	83 7
Rush Medical College	(1932)	85 5,* 87 3*
University of Louisville School of Medicine	(1931)	85 8
Tulane University of Louisiana School of Medicine	(1932)	85 1, 86 5, 86 8, 88 2
University of Tennessee College of Medicine	(1932)	84 4
Vanderbilt University School of Medicine	(1932)	88 6

Dr. Baker also reports 7 physicians licensed by reciprocity with other states and one physician licensed by endorsement from Jan 21 to July 12, 1932. The following colleges were represented.

College — LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Emory University School of Medicine	(1931)	Georgia
Rush Medical College	(1930)	Illinois
University of Minnesota Medical School	(1929)	Minnesota
Meharry Medical College	(1928)	Tennessee
Baylor University College of Medicine	(1930)	Louisiana
University of Virginia Department of Medicine	(1928)	Virginia
University of Naples Faculty of Med and Surgery	(1923)	Illinois

College — LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Harvard University Medical School	(1929)	N B M Ex

* These applicants have received their four year certificate and will receive their M D degree on completion of an internship

Book Notices

Epidemiologische en bacteriologische gegevens over het roodvonk. Door Dr. J. Goudsmit. Bekroond antwoord op de prijsvraag uitgeschreven door de Nederlandsche Maatschappij tot Bevordering der Geneeskunst. Cloth. Pp. 311, with illustrations. Amsterdam: F. Van Rossen, 1932.

This work is the prize winning answer to the following thesis propounded by the Dutch Society for the Advancement of Medicine at Amsterdam: "Data, partly based on personal observations, are requested concerning the epidemiology of scarlet fever, taking into consideration the question of contagion by inanimate objects and making use of the modern reactions of immunity." The author devotes the first part of his work to a review of the literature on the etiology and pathogenesis of scarlet fever, with especial reference to Streptococcus hemolyticus, Dick's toxin and the meaning of Dick's immunity reaction. In the second part he deals with transmission of the disease through the various known agencies and from the point of view of the streptococcus theory. In the third part he discusses from the endemic point of view (1) the influence of the factors of age, race, sex, season, and the like, on the incidence of scarlet fever, taking for granted that Dick's reaction furnishes an index of the susceptibility to the disease; (2) the relations between virus, individual and group, with especial reference to the streptococcus as the causative agent, and (3) the application of the previously obtained data. In the fourth part he treats of scarlet fever epidemics, describes their changeable course and attempts to explain it from the point of view of our actual knowledge of surrounding conditions. The fifth part deals shortly with prophylactic and therapeutic measures. The author concludes his work with the statement that his investigations do not allow him to declare himself decisively for or against the streptococcus theory of scarlet fever. The book is carefully planned, well subdivided and connected and gives the reader a clear understanding of the subject under consideration.

Habits for Safety: A Text-Book for Schools. By Harry W. Gentles, of First Aid Life Saving, Chicago Chapter American Red Cross, and George H. Betts, Director of Educational Research, Northwestern University. Cloth. Price, 67 cents. Pp. 228, with illustrations. Indianapolis: Bobbs-Merrill Company, 1932.

These authors are particularly well equipped to prepare this type of book. Dr. Gentles is chairman of first aid life saving for the Chicago chapter of the American Red Cross and Mr. Betts is director of educational research in Northwestern University. It is becoming generally recognized that death by accident accounts for 100,000 lives annually. There are, moreover, some 10,000,000 injuries with a loss of billions of dollars due to absence from work and payment of compensation. The handbook called "Habits for Safety" is planned particularly for the young, since it is in youth that habits of safety must be developed. Various chapters in this book deal with safety in the home, at school, on the street, on the farm and in play. There are also chapters on the prevention of fires and electrical accidents, on the safety of the worker and on the administration of first aid.

Beiträge zur Physiologie des Hirnstammes. Von Prof. Dr. W. R. Hess, Direktor des Physiologischen Institutes der Universität Zürich. Teil 1: Die Methodik der lokalisierten Reizung und Ausschaltung subkortikaler Hirnabschnitte. Von Prof. Dr. W. R. Hess. Paper. Price, 24 marks. Pp. 122, with 114 illustrations. Leipzig: Georg Thieme, 1932.

This volume represents the first part of a series of contributions to the physiology of the brain stem and contains the description of the experimental method of the author. A cat is anesthetized by nitrous oxide and placed on the operating table; electrodes are then mounted on its head by means of special electrode holders, which are screwed on the skull. Electrodes with two or more poles have been used, each pole carrying two needles; they are inserted into the brain stem through small burr holes, and the brain is stimulated electrically after the animal has recovered from the anesthetic. Half an hour after the experiment, which is always photographed by a cinecamera, the cat is killed and the brain fixed by solution of formaldehyde. After twenty-four hours the electrodes are removed and the part of the brain containing the stimulated points is used for histologic purposes. Every area affected by the points of the electrodes is indicated by figures on enlarged photomicrographs, which are taken from serial sections. The whole set of these sections represents the "atlas of stimulated points." Every effect that has been observed during the experiments is registered in the so-called directory of symptoms, together with a description of the way it has been obtained. The information gathered by the stimulation experiments is completed by a series of experiments during which a coagulating current is introduced into the brain stem, so as to destroy certain points. The volume contains an extraordinarily detailed and elaborate description of every step of the experimental procedure, and of the various pieces of apparatus. A knowledge of the method used by the author is of great value for any one who is occupied in experimental neurology.

A Short Introduction to the History of Human Stupidity. By Walter B. Pitkin. Cloth. Price, $3.50. Pp. 574. New York: Simon & Schuster, 1932.

After Sinclair Lewis wrote "Babbitt," he pointed out that even the best of us are Babbitts and that even the smartest man may have Babbitt characteristics. Professor Pitkin has made a survey of stupidity among the great, among nations and races, indeed, such a massive array of stupidity in general as to convince the reader that stupidity is everywhere and that one is warranted in indicting Professor Pitkin for stupidity for making so much of stupidity. One need not search far to understand why human beings are stupid. It is simply because they are human beings.

Division palatine, anatomie, chirurgie, phonétique. Par Victor Veau, chirurgien de l'Hôpital des Enfants Assistés. Avec la collaboration de Mlle. S. Borel. Paper. Price, 140 francs. Pp. 568, with 786 illustrations. Paris: Masson & Cie, 1931.

This book presents the experience of the author in doing 500 cleft palate operations. From the introduction one feels that he has made the best of his experience and has set down his voluminous observations in a frank manner that stimulates the reader in the study and, more than that, wins him to the spirit of the author.

The book is divided into three parts: Anatomy constitutes the first part. Four types of cleft are distinguished: (1) simple cleft of the soft palate, 20.8 per cent; (2) simple cleft of the soft and hard palate without harelip and with the alveolus intact, 30.8 per cent; (3) unilateral cleft palate with the alveolus cleft, 38.8 per cent; (4) bilateral cleft palate with complete isolation of the median tubercle, 9.6 per cent. Surgical anatomy of all component structures is discussed at length and with many illustrations, and, following these studies, the author has outlined operations for as close as possible anatomic restorations.

The second part deals with the surgery of cleft palate. The methods of others are discussed at some length, and several pages are occupied with Lexer's ideas on the subject, which are generally adverse to those of the author. There is apparently a complete list of methods proposed for closing the palate where classic methods fail, and there is a list of "monstruosités chirurgicales" which includes operations to close the defect with flaps brought in from elsewhere in the body. The bad results of operation and reasons for them by the classic methods are discussed from anatomic and functional standpoints. There now follow case reports of the 500 operations. These range in length from half a line to several pages, and there are numerous illustrations, mostly line drawings of operations. In this section almost any type of cleft is to be found with a description of the author's closure. Statistics from all angles are listed. The total mortality has been 3.8 per cent (19 deaths out of 500), and it is interesting to note the decreasing mortality with the increase in years: one year, 9.4 per cent; two years, 5.7 per cent, three years, 2.7 per cent; four years, 1.8 per cent. Under the heading of statistics comes the discussion concerning the age at which the operation should be done. The author's ideas might be said to be reduced to mathematical accuracy. One who is in a quandary over this point must surely find solace in this small section. 1. The mortality is an argument in favor of late operation. 2. The speech is an argument in favor of early operation. It is shown that, in children operated on in the first year, speech is 70 per cent normal; in the second year, 69 per cent; but in the third year, 26 per cent. The optimal age for closing a cleft palate is between the twelfth and the twenty-fourth month; the mortality is 5.7 per cent, and the speech function is 69.6 per cent. However, these total statistics may be presented to the parents and the decision made by them. Veau agrees with Berry that the occasional operator had best wait for the later age. The statistics on anatomic closure show 15 unclosed palates, 26 holes behind the alveolus and 24 holes at the junction of the hard and soft palate.

The third part is said by the author to be the main aim of the book and deals with his technic for the closure of the four forms originally distinguished. In the first type, simple cleft of the velum, closure is effected by sutures along the nasal and buccal surface and a wire around the muscle bundle. No lateral incisions are made. The steps are made clear by twenty-eight illustrations. In the second type, cleft palate without cleft lip or alveolus, closure similar to the first type is done, but lateral flaps are raised over the hard palate and switched toward the median line. In the third type, complete cleft with harelip, a flap is taken from the vomer and turned over on itself to make a nasal lining, a palate flap from the cleft side is raised and carried over to the under surface of the vomer flap and held there apparently with one suture, and the vomer flap is then closed entirely through the alveolus with a flap turned similarly from the nasal, alveolar and buccal fornix mucosa. The soft palate is closed at another operation. For the fourth type, bilateral cleft palate and lip, essentially the same process is carried out as that in the third type, except that there are flaps taken from both sides of the vomer. Only one illustration accompanies this type of closure, and the author states that he writes this chapter with timidity because he has not had sufficient experience to state with authority the value of the method he proposes. The final chapters, on speech, include studies by Mlle. Borel on the physiology of speech in patients with cleft palate, and on the training of speech after operation.

The book stands as a monumental work to the author. There is such volume to it that it may be taken as a standard reference on the subject. The bibliography is excellent and, furthermore, is referred to generally in the text. Cleft palate will be found to be a complicated surgical problem; thorough study of the book might discourage some from attempting the work, but no one who does the work should omit a thorough study of it.

Man and Medicine: An Introduction to Medical Knowledge. By Dr. Henry E. Sigerist, Professor at the University of Leipzig. Introduction by Dr. William H. Welch, Professor of the History of Medicine, the Johns Hopkins University. Translated by Margaret Galt Boise. Cloth. Price, $4. Pp. 340. New York: W. W. Norton & Company, Inc., 1932.

Professor Sigerist has just taken the chair of the history of medicine in Johns Hopkins University. The book here presented has had a remarkable success in Germany, where there would appear to be a far greater number of intelligent laymen interested in medical knowledge than in this country. The book is divided roughly into parts dealing with man, disease, medical aid and the physician. It presents not only an outline history of medicine, written in exceptionally good English, but also a philosophy of medicine and a vast amount of fundamental medical knowledge. It is hard to believe that any person could be considered well educated without the information that Professor Sigerist here makes available. The layman who wishes a better understanding of current trends in medicine will find in this book the orientation that he desires.

Produktive Diabetikerfürsorge. Von Prof. Dr. Alfred Lublin und Dr. Robert Kroner, Assistenten der Medizin. Universitatsklinik und Poliklinik, Greifswald. Ein Bericht über Ziele und Erfahrungen des ersten deutschen Diabetikerheimes in Garz auf Rügen. Mit einem Geleitwort von Prof. Dr. Gerhardt Katsch, Direktor der Medizin. Universitätsklinik und Poliklinik, Greifswald. Paper. Price, 6 marks. Pp. 92. Leipzig: Georg Thieme, 1932.

This booklet gives the results of a year's experience with more than 200 patients in a newly erected German institution. This first German diabetic home was built for the purpose of aiding diabetic patients during the present economic conditions in Germany with a minimum of expense and an optimum of results. Much stress was laid on the fact that diabetic patients are unable to find work in the days of unemployment of millions of healthy people and therefore suffer from an inferiority complex in view of their own physical illness. Every effort was made to find some kind of occupation for every patient. The type of work depended on the stage of the disease and on the patient's previous education and experience. Thus a happy mental equilibrium was created which was thought to be of great importance for a successful diabetic treatment. The patients worked in the offices, laboratories, kitchens, the garden and the farm of the institution. In fact, all the employees of the home have diabetes. Their work was satisfactory throughout.

The main purpose of the medical treatment was to find the optimum in the carbohydrate tolerance, not while the patient was inactive but while in the routine of moderate physical exercise and work. The average duration of treatment of patients with mild and moderately severe diabetes was 32 days and in severe instances 132 days. No death was reported. The authors' experiences regarding the physical activities of their patients are summarized in their statement that neither the carbohydrate metabolic disturbance nor the general condition in a single patient showed any turn for the worse. However, an improvement of the carbohydrate tolerance that could be interpreted as being due to muscular activity was not observed. This is in contradistinction to the researches of Buerger and others, who reported favorable results in patients who were treated with insulin and who were kept at voluntary muscular activity. The authors emphasize the favorable effects of a diet poor in fat and rich in protein and carbohydrate as recommended by Porges and Adlersberg in cases of severe carbohydrate disturbances. The booklet is comprehensive and contains many valuable and concise statements. It may be recommended to any one interested in the modern treatment of diabetic patients.

Protective Measures Against Dangers Resulting From the Use of Radium, Roentgen and Ultra-Violet Rays. By Professor Hermann Wintz, M.D., Ph.D., Director of the University Gynæcological Clinic and Roentgen Institute, Erlangen. With the Assistance of Privatdozent Walther Rump, Ph.D. League of Nations, Health Organisation. Series of League of Nations Publications, III. Health. 1931. III. 9. Official No.: C. H. 1054. Paper. Price, 75 cents; 3/-. Pp. 114. Boston: World Peace Foundation; Geneva: League of Nations, 1931.

The chapters in this book concern prevention against dangers caused by radiation and against electrical accidents. They also cover hygienic measures in radiation establishments, and measures against the dangers of x-ray fires. Obviously the prevention of harm from the x-rays is concerned largely with dosage and with the use of suitable screens. A complete bibliography is offered as a supplement to the volume.

In considering the disasters that have resulted and the dangers that have developed due to storage of x-ray films, Professor Wintz points out that compliance with some of the regulations is practically impossible. He feels that the regulations issued by the German ministry of the interior, providing that fireproof safes be used for storage, so far as small stores of up to 15,000 films are concerned, are quite sufficient. He feels also that more importance should be attached to proper handling of x-ray films, for a small quantity of film, incautiously handled, is just as capable of causing a dangerous fire as a larger quantity.

Plastic Surgery of the Nose, Ear and Face. By Dr. Victor Frühwald. Translated by Geoffrey Morey, M.B., B.S., D.L.O., Junior Surgeon Shropshire Nose, Ear and Eye Hospital (Shrewsbury). Cloth. Price, $4. Pp. 86, with 88 illustrations. Vienna: Wilhelm Maudrich, 1932.

This is a short book written mainly for doctors who have worked with the author. It includes cosmetic surgery of the nose and ear and technic for the removal of wrinkles and folds from the face. The rasp is used to remove bony nasal humps, and ivory implants are recommended for saddle nose. The author has listed the deformities that he believes are the most commonly encountered, such as small hump nose, large hump nose, wide nose, saddle nose, alar deformities, large ears, prominent ears, and wrinkles of the face. For each of these there is a description of the author's technic of operation, and credit is given other surgeons when their methods are used. The author has not published any "before and after" photographs because he believes they are of no particular use to the reader.

Report of the Permanent Commission on Biological Standardisation (London, June 23rd, 1931). League of Nations, Health Organisation. Series of League of Nations Publications, III. Health, 1931. III. 10. Official No.: C. H. 1056 (I). Paper. Price, 40 cents; 1/6. Pp. 78. Boston: World Peace Foundation; Geneva: League of Nations, 1931.

This pamphlet is concerned with the standards adapted in various parts of the world for antitoxin, tuberculins, serums, biologic products for veterinary use, sex hormones and vitamins. It makes available the vitamin standards developed at the meeting in London in June, 1931.

Medicolegal

Malpractice Suit No Bar to Subsequent Action on Contract to Cure

(McQuaid v. Michou (N. H.), 157 Atl. 881)

The plaintiff brought an action for damages against the defendant-physician, charging him with negligence in treating her. There was a judgment in favor of the physician. Thereafter, the plaintiff brought another action against the physician, charging him with a breach of an express contract to cure. From a verdict for the plaintiff, the physician brought exceptions to the Supreme Court of New Hampshire.

The present suit is not barred, said the Supreme Court, because the existence of a promise to cure may have been an issue in the prior suit. If it was an issue, it was only a collateral one, not essential as an element of the cause of action. The prior suit was for improper treatment. This action is for failure of a promised result of treatment. The physician's liability in this action depends, continued the court, not on the character of his conduct but on his agreement for its results. How he acted is now only of collateral bearing, while in the prior suit it was only of collateral bearing what he agreed to do. The verdict in the prior suit shows that the physician's treatment of the plaintiff was proper and skilful, but it does not show what his undertaking was as to the outcome of the treatment. The fact that in the prior suit the plaintiff based her claim on improper treatment does not bar her present claim of proper treatment barren of promised results. While the plaintiff in this action may not find fault with the treatment she received, she may say that it did not do for her what the physician promised. If the physician had promised to pay the plaintiff a stipulated amount if he did not cure her, the defense that he had used due care and skill would be of no avail. The contract here falls short of such a promise only in its deficiency of provision for liquidated damages.

Apparently, the plaintiff did not complete the full course of treatments the physician wished to give. This conduct on the part of the patient, the physician claimed, was a breach of the contract on her part. The evidence, said the court, authorized a conclusion that the plaintiff did not complete the treatment because it affected her health too seriously. The physician contended that the verdict in the prior suit determined this issue of her fault against her. The verdict in the prior suit, said the court, exonerated the physician from blame for the treatment, but it did not show that the plaintiff was at fault for the results of the treatment. Responsibility for the results was not necessarily hers merely because it was not the physician's. A contract to cure is against public policy, the physician further contended, in that its enforcement would tend to dissuade a physician from encouraging his patients by giving them hope as an important aid to their improvement or recovery. The line between a promise and an opinion, said the court, is not so narrow and shadowy that language may not be well chosen to express one in clear distinction from the other. It is a simple matter for a physician to make it definite that he guarantees no good results. If a promise to cure were held illegal, a patient ignorant of its illegality would be misled in placing reliance on it. If he were aware of its lack of binding force, his knowledge would tend to prevent confidence in it, and the gain to be expected from freedom of statement would be lost in its known irresponsibility.

The trial court declined to charge the jury, at the physician's request, that the plaintiff could not recover unless she believed that the defendant would cure her, or if both parties knew her disease to be incurable. Expectation on the plaintiff's part, said the court, that the promise to cure would be fulfilled, was not necessary to give it contractual effect. When a thing is promised, it is of no consequence whether or not the promisee expects performance. If both parties knew the disease was incurable, however, then they knew that the promise could not be performed. Contracts known by the contracting parties to be impossible of performance are void and the jury should have been so instructed. If, however, the terms of the contract limited the duration and severity of the treatment, the plaintiff may recover damages for any conditions or results of the treatment in excess of the limits, although both parties knew the disease was incurable. If the plaintiff knew she could not be cured, she took the treatment with some thought that it might help her. If it hurt her beyond what it was agreed it would, and if she incurred expense and loss of earnings on that account, she may claim a breach of the terms of the agreement in regard thereto, even if the knowledge of both parties that she could not be cured made the promise to cure ineffective.

The rule of damages, said the court, in a suit alleging breach of contract to cure, gives as compensation only the difference between the condition promised and the actual condition, including incidental consequences fairly subject to contemplation by the parties when the contract is made. The actual condition may include suffering as an attendant feature of it, and hence such suffering may be shown. Suffering, however, incident to treatment may not be taken into consideration in the computation of damages. For error of the trial court in instructing the jury concerning the measure of damages, the Supreme Court overruled the verdict for the plaintiff and remanded the case for a new trial.

Unlawful Practice of Medicine by Chiropractor.—Robertus, a chiropractor, treated a patient, after examination, "for misalignment of certain joints of the vertebrae and spine." He used no drugs nor surgical instruments. He was convicted of practicing medicine without a license and appealed to the court of criminal appeals of Texas. The medical practice act of Texas, said the appellate court, has often been held constitutional. In *Hicks* v. *State*, 88 Texas Cr. R. 438, 227 S. W. 302, the court said:

> The law as a law appears to be made equally for all who fairly come within its comprehension, and, as far as we know, prescribes no examination conforming to the technical requirements of any school or branch of medical practice, and is not violative of the tenets of article 16, section 31, of our constitution, which commands laws prescribing the qualifications of physicians, and forbids preference by law to any school of medicine.

The trial court did not err in permitting a witness to testify, over objection, concerning the number of her visits to Robertus' office for treatment. Neither did the court err in refusing to permit a patient of Robertus to state what her condition was after she had been treated by him. Such evidence, said the court, could in no way mitigate against the question of guilt. The trial court refused to permit Robertus to answer a question as to whether or not he practiced medicine. Whether or not Robertus did practice medicine was a conclusion of fact for the jury to decide, said the appellate court. The question asked called for an opinion on the part of Robertus, and the answer thereto would not only amount to a mere opinion or conclusion but would be an opinion or conclusion which the witness could not be permitted to testify to because it involved the whole merits of the controversy. The mere fact that a prospective juror may have been treated by a chiropractor does not disqualify him as a juror in the trial of a chiropractor for violating the medical practice act. The conviction was affirmed. —*Robertus v. State (Texas), 45 S. W. (2d) 595.*

Workmen's Compensation Acts: Refusal to Undergo Operation.—An employee, in the course of his employment, injured his arm and sought compensation under the workmen's compensation act of Oklahoma. Physicians testified at the hearing that the disability might be removed by a major surgical operation, but the employee refused to submit to the operation. The industrial commission awarded compensation and the employer and his insurance carrier appealed to the Supreme Court of Oklahoma. Whether or not, said the court, an employee may be barred from compensation because he refuses to submit to an operation depends on the nature of the operation. If it is a major operation, involving the slightest risk to life, the employee has the right to refuse to submit to it. He may choose whether he desires to suffer from the disability for the rest of his life or whether he shall take the risk of a surgical operation in order to lessen the disability. In any event, said the court, the employee is entitled to compensation.—*King Drilling Co. v. Massenburg (Okla.), 7 P. (2d) 454.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Montreal, Sept 19 23 Dr William P Wherry, 1500 Medical Arts Building, Omaha, Neb , Executive Secretary

American Association of Railway Surgeons, Chicago, November 2 4 Dr Louis J Mitchell, 29 East Madison Street, Chicago Secretary

American College of Surgeons St Louis, October 17 21 Dr Franklin H Martin, 40 East Erie Street, Chicago Director General

American Physical Therapy Association, Detroit September 28 30 Dr C C Vinton, 241 02 S Conduit Blvd , Rosedale, N Y , Secretary

American Public Health Association, Washington D C , October 24 27 Dr Kendall Emerson, 450 Seventh Avenue New York Acting Executive Secretary

American Roentgen Ray Society, Detroit, September 27 30 Dr Eugene P Pendergrass, 3400 Spruce Street, Philadelphia Secretary

Associated Anesthetists of the United States and Canada New York October 17 21 Dr F H McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary

Association of Military Surgeons of the United States, Hartford Conn , October 20 22 Dr J R Kean, Army Medical Museum, Washington, D C , Secretary

Clinical Orthopedic Society Chicago November 10 12 Dr E B Mumford, Chamber of Commerce Building, Indianapolis Secretary

Delaware, Medical Society of Lewes September 27 28 Dr W O La Motte, 604 Medical Arts Building, Wilmington, Secretary

Indiana State Medical Association Michigan City September 27 29 Mr T A Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary

Inter State Postgraduate Medical Association of North America Indianapolis, October 24 28 Dr W B Peck, 12½ East Stephenson Street, Freeport, Ill , Managing Director

Kentucky State Medical Association, Louisville October 3 6 Dr A T McCormack, 532 West Main Street Louisville, Secretary

Nevada State Medical Association, Reno, Sept 23 24 Dr Horace J Brown, 120 North Virginia Street, Reno Secretary

Northern Minnesota Medical Association Crookston, Sept 19 20 Dr O O Larsen, Detroit Lakes, Secretary

Oregon State Medical Society, Klamath Falls Sept 22 24 Dr Albert W Holman, 410 Taylor Street, Portland, Secretary

Pennsylvania, Medical Society of the State of Pittsburgh October 3 6 Dr Walter F Donaldson, 500 Penn Avenue, Pittsburgh Secretary

Vermont State Medical Society Burlington October 6 7 Dr William G Ricker, 31 Main Street, St Johnsbury, Secretary

Virginia Medical Society of, Richmond November 1 3 Miss Agnes V Edwards, 1200 East Clay Street, Richmond, Secretary

CONFERENCE ON RHEUMATIC DISEASES

Held Under Sponsorship of the American Committee for the Control of Rheumatism New Orleans, May 9, 1932

Work of the American Committee for the Control of Rheumatism

Dr Ralph Pemberton, Philadelphia Arthritis is the oldest disease on record and is the cause of more pensionable invalidism than any other condition except cardiovascular disease of old age The medical profession has more or less ignored it, and because of this indifference there has long existed an attitude of pessimism concerning it About eight years ago in Europe was created the "Ligue Internationale Contre le Rheumatisme" Five years ago the American Committee for the Control of Rheumatism was formed to act in affiliation with the Ligue, to provide for the standardization of treatment of sufferers from arthritis, to stimulate investigation, and to endeavor to extend sound information regarding it to the medical and lay public alike

The committee recognizes two great types of chronic arthritis, the atrophic or rheumatoid, and hypertrophic or osteo-arthritic It has published a "Concept," and "Outline" and a "Primer" dealing with the general nature of the rheumatoid problem and setting forth certain basal etiologic, pathologic and therapeutic considerations about which there can be no serious or radical differences of opinion Scientific exhibits on arthritis were presented at the annual sessions of the American Medical Association in 1930, 1931 and 1932 Clinics have been established in various parts of the country, where treatment has brought help to many sufferers from arthritis

In order to arrange some formal expression of the views and experiences of others, the committee called this meeting

Clinical and Economic Features of Arthritis in 450 Ex-Members of the Military Service

Dr Philip B Matz, Washington, D C During 1931, about 35,000 ex-service men received over $10,000,000 in disability compensation caused by arthritis, a number constituting 6 4 per cent of all beneficiaries of the Veterans' Administration, and a sum constituting 4 7 per cent of all veterans' benefits Five degrees of impairment of earning capacity are recognized officially temporary partial, temporary total, permanent partial, permanent total and double permanent total disability A group of 450 cases in the hospital for special study included 213 cases of hypertrophic arthritis, 172 of atrophic arthritis, 31 of hypertrophic spondylitis, 14 of "specific" infectious arthritis (gonorrheal, tuberculous), ten of rheumatic fever, and ten miscellaneous In only 17 per cent of the cases was there evidence of hereditary or familial history of disease of the joints Exposure and trauma were the chief predisposing factors A study of dietary habits did not indicate that overindulgence in food is a predisposing factor No relationship of endocrine disturbance or allergy to the inception of arthritis was found Focal infection was prominent although not the sole antecedent factor Patients with hypertrophic spondylitis had an average of five and seven-tenths acute exacerbations, and those with specific arthritis an average of two For the entire group there was an average of four exacerbations for each patient, and the mean duration of disease of the joints was 130 months Improvement was noted in 76 per cent of the cases

DISCUSSION

Dr P S Hench, Rochester, Minn Does the question of malingering present a serious problem? It is often difficult to prove the presence of organic disease in patients complaining of diffuse pains in muscles and about joints when no objective articular phenomena, muscle spasms or atrophy, are present The results of roentgen examination and other laboratory tests do not help much In the Veterans' Bureau, arthritis is a compensatory disability If there is a question of money return, especially in times of economic stress, human nature has not changed and the soldier may feel disabled from aches and pains little beyond the "normal"

Dr J L Dubrow, Memphis, Tenn Electrocardiographic studies similar to those recently reported by Master and Jaffe and the sedimentation test are of diagnostic and prognostic value

Dr P B Matz, Washington, D C I cannot state how many patients gave a history and subjective symptoms of arthritis and were found on examination not to have any disability No doubt a number of such patients are drawing compensation, but they cannot escape detection long, as examinations for rating purposes are very carefully done and include roentgenographic and objective evidence

Dr Ralph Pemberton, Philadelphia Many of Dr Matz's patients, at the onset of atrophic arthritis, were overweight, a condition somewhat contrary to general experience Obviously, some were ingesting more food than they could adequately care for, a recognized factor in the rheumatoid syndrome

The Relationship of Endocrine Disturbance to Arthritis

Dr Francis C Hall, Boston Thyroid deficiency appears to be one of the contributing etiologic factors Among 150 patients with hypertrophic arthritis, symptoms and signs of hypothyroidism occurred with great frequency Basal metabolic rates were below —10 in 50 per cent, and below —15 in 34 per cent of 108 patients The patients were in general well nourished, and no other explanation for hypometabolism was apparent except glandular deficiency Treatment with thyroid gland was of permanent benefit to 49 per cent of 116 patients to whom it was administered Among 150 patients with atrophic arthritis, stigmas of hypothyroidism were encountered less frequently and if present might have been accounted for by depletion and undernutrition Metabolic rates were below —10 in 35 6 per cent and below —15 in 17 7 per cent of 103 patients Treatment with thyroid gland was of permanent value to only 16 5 per cent of 103 patients, it probably helps by providing better nutrition to joints

Relation of the Digestive Tract to Arthritis

Dr T Preston White, Charlotte, N C The role of focal infection and its removal is not as important as the discovery and correction of metabolic errors Ninety-nine cases of atrophic and 112 of hypertrophic arthritis were studied Only three of thirty patients with atrophic arthritis and only one of thirty-four patients with hypertrophic arthritis received benefit, and that only temporary, from dental extractions. Only 17 per cent of about fifty patients with atrophic arthritis and 13 per cent of about sixty with hypertrophic arthritis experienced relief from tonsillectomy. Focal removal seems to help only about 10 to 15 per cent of all patients with arthritis and may make 5 per cent of them worse. Of both types observed, 85 per cent of the patients ingested starches excessively, 80 per cent were habitually constipated, and about 40 to 50 per cent were obese. The treatment included Pemberton's (low calory, low carbohydrate) diet, laxatives, increased periods of rest, and physical therapy. Removal of foci, and vaccines played a minor part. About 75 per cent of patients were improved.

DISCUSSION

Dr. R. Garfield Snyder, New York: Dietary control is essential, but low colonic irrigations with plain or medicated water are an important therapeutic addition. In spite of criticism of this form of treatment, experience with more than 16,000 irrigations in the treatment of more than 1,000 patients with arthritis seems to show that recovery is hastened and that no injury to the colon results.

Dr., A. R. Shands, Durham, N. C.: I cannot agree that untoward results do not follow colonic injections. They seem to cause dizziness and extreme weakness in older patients, necessitating their discontinuance. Others are markedly benefited; one patient, bedridden for two or three years, was able to walk after three irrigations. As a rule, those who are going to be improved thereby begin to show some relief after the second or third irrigation. To obtain maximum results from vaccine, colonic irrigations or other treatment, careful attention must be paid to the factor of diet, a matter so far unsettled, as there is no complete understanding of what aberrations in digestive function occur in cases of chronic arthritis.

Dr. Earl D. McBride, Oklahoma City: The laborers in the oil fields of Oklahoma eat heartily and chiefly of meat, beans, potatoes and bread. They are subject to traumatic disorders, chiefly backstrain. An intestinal tract thus overloaded plays an important part in prolonging disability. Trauma and then toxins from food lower the resistance of joints to focal infection, which is ever present and which soon gains headway.

Dr. Robert B. Osgood, Boston: Although several factors, climate, diet, rest and infection, are important in chronic disease, a consideration of the gastro-intestinal tract in chronic arthritis is perhaps most important. Physicians should never fail to study the demands of combustion and elimination. In a large percentage of cases there is evidence in the stools of indigestion caused by starch and of fermentation. An excess of carbohydrate seems to be the chief offender.

Dr. Paul A. McIlhenny, New Orleans: Ten constipated patients were treated by simple carthartics alone, and ten others with cathartics and high colonic irrigations. Improvement was more decided in the latter group than in the former.

Dr. T. Preston White, Charlotte, N. C.: In my experience colonic irrigations have been unnecessary when proper diet, laxatives, postural exercises and rest are employed. The expense of long continued irrigations must be considered.

Coexistent Chronic Infectious (Atrophic) Arthritis and Cholecystitis: Results of Cholecystectomy

Drs. E. Starr Judd and Philip S. Hench, Rochester, Minn.: Although the gallbladder is not a common focus, it is infected in about 3 to 5 per cent of cases of chronic infectious (atrophic) arthritis. In some cases cholecystitis and infections of joints bear an indirect relationship, both probably arising from some other and primary focus. In other cases, infections of the gallbladder may serve as a focus for arthritis, as it may harbor organisms, generally streptococci, occasionally staphylococci or bacilli, capable of producing experimental lesions in the joints and gallbladders of animals. Bacteriologic and pathologic observations have been made in fifty-five cases of chronic infectious arthritis in which cholecystectomy for coexistent gallbladder disease was performed. In several cases, gallbladder tissue contained arthrotropic organisms. In five of the cases, symptoms related to the joints were completely relieved. In eleven cases there was marked improvement, and in eight definite, although moderate, relief followed operation, a total of 52 per cent. The joints of the remaining twenty-one patients were not appreciably affected by cholecystectomy. These observers concluded that when definite surgical indications for cholecystectomy are present it is justifiable to urge surgical intervention in the biliary tract in the hope that the arthritis may be definitely benefited. Further experience is necessary before one can urge removal of the gallbladder for arthritis when the indications for operation, aside from the arthritis, are not definite. A conservative attitude is probably desirable, yet the nature of chronic infectious arthritis is so malicious that a radical attitude in individual instances may be justified, provided surgery is advocated and accepted without unwarranted promise of benefit.

DISCUSSION

Dr. R. Garfield Snyder, New York: Stones or disease of the gallbladder have been found in only 12 of 981 cases of chronic arthritis. Cholecystectomy was performed in two cases, and in addition to relief of the biliary disturbance, both patients reported a rather marked improvement in the symptoms of arthritis, an improvement that has persisted. Hartung and Steinbrocker found infection of the gallbladder in only 4.5 per cent of 200 patients with chronic rheumatism, an incidence no higher than in any other group of general cases in the hospital. Medical treatment has seemed preferable to surgical in my cases: diet, colonic irrigations and nonsurgical drainage of the gallbladder by the Lyon method, the benefits of which seem to be due not so much to drainage of the gallbladder as to drainage of the liver itself, have been employed.

The Climatic Factor in the Treatment of Rheumatic Disease

Dr. W. Paul Holbrook, Tucson, Ariz.: Climate is not a panacea for all rheumatic diseases, and other treatment should not be neglected. The argument in favor of climatic treatment is based on the low incidence of rheumatic disease among local Indians, Mexicans and white persons resident in and near Tucson as compared with the incidence elsewhere, and the results of such treatment in a group of 500 patients with rheumatic fever and chronic arthritis. In cases of recurrent rheumatic fever, referred to Arizona for treatment, all evidence of activity subsided during the patients' stay, and in a large proportion of those with chronic arthritis, even of an advanced state, gratifying results were obtained by general care and climatic treatment alone. The total effect of climate is a composite of humidity, temperature range, barometric pressure, wind velocity, rainfall, concentration of ultraviolet rays, total sun energy, ionization of the air, type and character of exposure to sun, and the like. Studies are being carried on to determine which are the significant factors and how they work.

The Desensitization Treatment of Chronic Arthritis

Dr. James C. Small, Philadelphia: The rationale of the desensitization treatment rests on the hypothesis that patients with arthritis have acquired hypersensitive states. The hypersensitive properties of their tissues are acquired from multiple contacts with some foreign substance. In the case of arthritis this substance is provided by the establishment of a focus of infection and of auto-inoculation thereafter. The treatment consists of subcutaneous injections of minute doses of a saline extract of Streptococcus cardioarthritidis. Vaccines from this organism are too toxic for use. The dosages of the saline extract which give beneficial results seem so small as to appear beyond the limits of reason, but as further experience with dosage has been acquired, more and more patients with arthritis have responded favorably. Moderate overdosage leads to prompt and sharp, unfavorable reactions; an apparent paradox appears in that marked overdosage is followed not by prompt but by delayed reaction, appearing only after two or three days and which may, unless recognized and subsequent doses corrected, lead to progressive disability. No stated schedule of antigen dosage can be prearranged, as the injections may activate foci of infection and cause further auto-inoculation. The opsonic index is used to gage the dose. The benefits are not derived from the foreign protein content of the antigen but may depend on the presence of bacterial polysaccharides devoid of sensitizing properties but yet effective in reducing an existing hypersensitization.

Intravenous Vaccine Therapy in Chronic Arthritis

Drs. Macnider Wetherby and B. J. Clawson, Minneapolis: Vaccines from one strain of streptococcus, isolated from a patient with rheumatic fever, are used in the treatment of rheumatic fever, atrophic (rheumatoid) and hypertrophic (osteo) arthritis alike since we believe that no distinct separation of these diseases is warranted. This view is based on the isolation of streptococci from the blood, the common presence of subcutaneous nodules, the similar reactions of streptococcal skin tests, common biologic relationship of the streptococci isolated in all three conditions, and the favorable clinical response of all types to the intravenous streptococcic vaccine therapy, this one strain alone being used. It is of low virulence, it is not a self agglutinator, and it cross agglutinates in high titer with many other strains of streptococci from patients with rheumatic fever and chronic arthritis. The vaccine is given intravenously because Clawson's experimental work on animals showed that streptococci injected subcutaneously may render animals hypersensitive and produce only a moderate degree of protection, while intravenous injection produced desensitization and, more important, a high degree of protection by antibody formation. An initial dose of 100,000,000 bacteria is given and weekly subsequent injections are increased from 100,000,000 up to 800,000,000 organisms. Fever and chills are frequently experienced. Of 300 patients with chronic arthritis so treated, 80 per cent were clinically improved. The degree of improvement bore no relation to the degree of reaction following the injection. Improvement was manifest in most cases after five injections. The agglutinating titer of the patient's blood rises during treatment and improvement is not, as a rule, noted until the titer has risen to 1 : 6,400, or more. The height of the agglutinating titer in most cases seems to be a reliable indication of the degree of protective immunity to streptococci provided to the patient.

DISCUSSION ON PAPERS OF DR. HOLBROOK, DR. SMALL, AND DRS. WETHERBY AND CLAWSON

Dr. John W. Gray, Newark, N. J.: The great army of sufferers from the North cannot be imported to tropical climates and means must be sought of combating the disease where it occurs. With Dr. Gowan, by a modification of Cecil's method, I have isolated streptococci from the blood in 61 per cent of 144 patients with rheumatoid arthritis. Cultures in 133 control cases were essentially sterile. Positive cultures were obtained in from one to three days without opening the containers. Vaccine subcutaneously was abandoned in favor of intravenous injections, the strains isolated being used. An initial dose of 100,000 only was used, and if with increasing amounts discomfort and increased pain in the joints were experienced, the dose was greatly reduced or the vaccine was discontinued temporarily.

Dr. William J. Kerr, San Francisco: Perhaps the common denominator in all these methods of treatment, vaccines, peptone, amidoxylbenzoate, physical therapy of various sorts, sympathectomy and diets, is the improvement of the local circulation to joints. Whether the beneficial results of vaccines are brought about by release of antibodies or by a change in the physical state of the blood is not known. Vaccines can increase the surface temperature of the body. Some foci of infection develop not before but after the appearance of arthritis, probably because of the general condition of the patient. Streptococci are ubiquitous organisms and perhaps the experience that was had with Hodgkin's disease a few years ago is being reported. If enough blood is taken enough times from a patient with a chronic disease and if delicate methods of culture are used best suited for the growth of the organism that is being looked for, perhaps the same thing could be found in many chronic diseases. Most important in treatment is the improvement of the general condition of the patient by all means at hand.

Dr. O. O. Ashworth, Richmond, Va.: Using a modification of Cecil's method, I have isolated streptococci from the blood of 56 of 138 patients with rheumatoid arthritis. In thirteen cases a gram-positive diplococcus was recovered and by Mellon's culture method these diphtheroids assumed a true streptococcal form. Blood cultures from more than 100 cases of hypertrophic arthritis were negative. Small doses of autogenous vaccines were given intravenously and marked improvement was obtained in 53 per cent of 122 cases of rheumatoid arthritis so treated, improvement generally beginning after a few injections.

Dr. Russell L. Cecil, New York: Probably no two of the hundred physicians present have the same ideas about the disease. Get three or four together who are interested in arthritis, and one can start a fight almost any time. As to cutaneous reactions to streptococci, some give a marked reaction, others none at all. When foci of infection are removed early and promptly, nature will often heal the infected joints. Then removal of foci often marks the turning point in the patient's condition. Late in the disease, focal infection plays a minor part; and after three or four years of the disease, it does not make much difference whether or not the foci are removed. There are so many kinds of vaccines, it leaves one in doubt as to where to start. Dr. Small uses small doses, Dr. Wetherby large. The differences in terminology given to the various streptococci used for vaccines should not be a cause for confusion. One may speak of hemolytic streptococci, another of green streptococci, yet be describing the same organism, as the differences in appearance are often due to the culture mediums used. In view of the high agglutinins in patient's serum, the experimental arthritis produced and the high percentage of recovery, I cannot feel that the germs isolated by myself and my colleagues were contaminants.

Dr. Reginald Burbank, New York: Dr. Small and other advocates of small dosages of bacterial products are attempting desensitization rather than immunization. Small doses tend to decrease formation of antibodies against infective streptococci, whereas massive doses increase such formation and agglutination titer. Both methods can give favorable results. Small dosage is more satisfactory in the long run even though results are slower. Adverse climate is not, per se, conducive to arthritis. Among the Eskimos the disease is almost unknown, as it is in Denmark and Iceland. In other sunnier and warmer climes it is common.

Dr. A. Almon Fletcher, Toronto: I doubt that Wetherby's method of using large doses of vaccine over short periods of time will have permanent value. A rise in blood agglutinins does not always indicate favorable change. I have seen patients improve while the level of blood agglutinins was falling. Faulty diets, inadequate in vitamins and unbalanced in food factors, predispose to the development of the disease, but it may take years for the influence of suboptimal diets to become apparent. An extended trial of dietetic measures is indicated.

Dr. John H. Musser, New Orleans: Since I have been in New Orleans I have seen practically no cases of arthritis, in contrast to my experience in Philadelphia, where 50 per cent of patients in wards of hospitals had arthritis.

Dr. R. E. Utley, Harlingen, Texas: I have never seen acute rheumatism and rarely find a patient with chronic arthritis resident in the extreme southwest of Texas, where there is a low altitude and a dry, semitropical climate.

Dr. Ralph Pemberton, Philadelphia: Various factors have each an influence and are not at all incompatible one with the other. The successful treatment of arthritis today depends on seeing the problem whole rather than from any single angle of vision, and on advancing a therapeutic program which considers in a coordinated way its various aspects.

Dr. James C. Small, Philadelphia: I question the value of using the patient's agglutinin titer as an index of his immunity. In order to maintain a high titer there must be available from time to time a certain amount of antigen. Patients with an active focus maintain a high agglutinin titer, which gradually becomes less when foci are eliminated.

Dr. Macnider Wetherby, Minneapolis: My experience with intravenous typhoid vaccine has been unsatisfactory in most cases, and raising the agglutinins for typhoid bacilli to a titer of 1 : 200,000 had no effect on increasing streptococcal agglutinins, whereas the patient with more active involvement tends to have a high agglutination titer, which falls as the activity subsides; this is not comparable to the artificial elevation of agglutinin titer by intravenous vaccine. In such cases there is generally correlation among the agglutinin titer, the clinical improvement and, more significant, the bactericidal power of the blood for streptococci.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

101: 213-407 (July) 1932

*Effect of Lumbar Sympathectomy on Flow of Blood in Femoral Artery of Dog. J. F. Herrick, H. E. Essex and E. J. Baldes, Rochester, Minn.—p. 213.

Male Hormone: V. Effect of Male Hormone and Anterior Pituitary. C. Funk, Warsaw, Poland, and B. Harrow, New York.—p. 218.

Factors Which Influence Flow and Protein Content of Subcutaneous Lymph in Dog: I. Hemorrhage and Hyperemia. Florence W. Haynes, Boston.—p. 223.

Further Observations on Rapidity of Passage of Substances from Blood to Lymph in Dog. Florence W. Haynes, Boston.—p. 232.

Accumulation of Lactic Acid in Excised Liver Tissue. J. Haldi, Ann Arbor, Mich.—p. 236.

Prevention of "Castration Cells" in Anterior Pituitary of Male Rat by Administration of Male Sex Hormone. J. D. Reese and M. McQueen-Williams, San Francisco.—p. 239.

Anterior Pituitary Sex Hormone in Blood and Urine of Rats. F. E. Emery, Buffalo.—p. 246.

Metabolism During Growth in Common Pigeon. O. Riddle, Theodora C. Nussmann and F. G. Benedict.—p. 251.

Basal Metabolism of Mourning Dove and Some of Its Hybrids. O. Riddle, Guinevere C. Smith and F. G. Benedict.—p. 260.

Physiologic Action of Dehydrocholic Acid. J. F. Regan and O. H. Horrall, Chicago.—p. 268.

Demonstration of Accelerator Nerve and Postganglionic Parasympathetic Fibers in Vagosympathetic Trunk of Dog. L. O. Morgan and P. P. Goland, Cincinnati.—p. 274.

Studies on Suprarenal Insufficiency: X. Depressor Responses to Small Doses of Adrenalin in Rat, Induced by Loss of Suprarenal Medulla. L. C. Wyman and Caroline tum Suden, Boston.—p. 282.

Elasticity of Dural Sac and Its Contents. L. B. Flexner, Janet H. Clark and L. H. Weed, Baltimore.—p. 292.

Observations on Circulation in Fetal Albino Rat. E. L. Corey, Richmond, Va.—p. 304.

Effect of Castration in Guinea-Pig on Sex-Maturing Potency of Anterior Pituitary. A. E. Severinghaus, New York.—p. 309.

End of Spike Potential of Nerve and Its Relation to Beginning of After-Potential. H. S. Gasser and Helen Tredway Graham, St. Louis.—p. 316.

*Histamine as Hormone for Gastric Secretion. J. Sacks, A. C. Ivy, J. P. Burgess and J. E. Vandolah, Chicago.—p. 331.

Fatigue in Skeletal Muscle in Relation to Frequency of Stimulation. H. Davis and Pauline A. Davis, Boston.—p. 339.

*Studies on Albuminuria Following Exercise: I. Its Incidence in Women and Its Relationship to Negative Phase in Pulse Pressure. Frances A. Hellebrandt, Madison, Wis.—p. 357.

Id.: II. Its Relationship to Speed of Doing Work. Frances A. Hellebrandt, Elizabeth Brogdon and L. E. A. Kelso, Madison, Wis.—p. 365.

Hemodynamics of Arteriosclerosis: Influence of Change of Coefficient of Volume Elasticity on Circulation. G. Fahr, Jay Davis, A. Kerkhof, P. Hallock and E. Giere, Madison, Wis.—p. 376.

Passage of Urea Between Blood and Lumen of Small Intestine. W. R. Pendleton and F. E. West, Los Angeles.—p. 391.

Note on Relationship of Cerebrospinal and Intralabyrinthine Pressures. W. Hughson, Baltimore.—p. 396.

Effect of Lumbar Sympathectomy on Flow of Blood in Femoral Artery.—Herrick and his associates made a series of studies on the flow in the femoral artery of the dog. A comparison was made of the minute volume flow in the right and left femoral arteries, both local and general anesthesia being used. After unilateral sympathectomy the flow was again measured. The results show that the flow is the same in the two femoral arteries of the normal dog. Following unilateral sympathectomy, the flow in the femoral artery on the sympathectomized side is about twice as great as that on the intact side. When ether anesthesia is used in place of local infiltration, the difference between the intact and the sympathectomized side is not conspicuous. The authors conclude that surgical ether anesthesia is almost as effective as sympathectomy in producing vasodilatation.

Histamine as Hormone for Gastric Secretion.—Sacks and his associates isolated histamine from acid extracts of the pyloric mucosa as a sulphate and picrate. The method is described. Vasodepressor and secretory assays on all fractions from the original acid extract to the final product of histamine crystals and mother liquor yield strong, if not conclusive, evidence that histamine is the sole secretory excitant active subcutaneously in acid extracts of the pyloric mucosa and that histamine was not produced by the chemical procedures employed. Histamine (0.5 to 1 mg.), pilocarpine (5 to 10 mg.) and isopilocarpine (10 mg.) are the only imidazoles out of ten tried that stimulate gastric secretion. Methylene histamine (5 to 10 mg.) does not stimulate gastric secretion. A threshold dose of a gastric secretory excitant is present in 1 or more liters of urine, which is to be expected on the basis of the histamine content of urine. Histaminase destroys the gastric secretory effectiveness of "gastrin" solutions. Histamine adsorbed to Lloyd's reagent maintains its vasodepressor and secretory properties.

Albuminuria Following Exercise.—From forty-seven individuals, Hellebrandt made analyses of the urine collected immediately following experimental bouts of physical exertion of various types, such as riding the bicycle ergometer, running around an indoor track at top speed, and working in a rowing machine. It was noted that the incidence of albuminuria increased from 14.8 per cent before exercise to 57.5 per cent after exercise. The pulse pressure fell below normal in all cases after a half hour bicycle ergometer ride. The pulse pressure fall in the cases with postexercise albuminuria was 90.1 per cent greater in depth and was maintained 41.8 per cent longer than the pulse pressure fall in the cases without albumin following physical exertion. The greatest amount of albumin was found to occur during the period of oliguria and the maximal reduction in the amplitude of the pulse pressure. The author explains the experimental results by the hypothesis that strenuous exercise shunts the blood to the working muscles and the skin, affecting the circulation of the kidney in such a way as to cause asphyxiation of the renal cells beyond that compatible with normal function. The deep and protracted postexercise low pulse pressure adds to the anoxemia already present and induces an abnormal accumulation of acids in the renal tissue which alters its permeability to the blood proteins and albumin appears in the urine.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

27: 801-943 (June) 1932

Abnormalities of Vertebral Body. W. A. Evans, Detroit.—p. 801.

Intrinsic Circulation of Vertebral Body, with Roentgenologic Considerations. G. Wagoner and E. P. Pendergrass, Philadelphia.—p. 818.

*Roentgen Signs of Tuberculosis of Vertebral Body. H. P. Doub and C. E. Badgley, Detroit.—p. 827.

*Colon as Studied by Double Contrast Enema. J. Gershon-Cohen and H. Shay, Philadelphia.—p. 838.

Viscosity of Lipiodol in Bronchography. R. G. Bloch, Chicago.—p. 847.

Roentgenographic Study of Glass and Its Visibility as Foreign Body. R. W. Lewis, New York.—p. 853.

Primary Carcinoma of Lung: Roentgen Diagnosis and Preliminary Report of Roentgen Therapy. W. F. Manges, Philadelphia.—p. 858.

Therapeutic Application of Roentgen Ray in Angina Pectoris. E. C. Samuel and E. R. Bowie, New Orleans.—p. 870.

*Evaluation of High Voltage Roentgen Rays in Therapy of Carcinoma of Cervix. C. A. Behney, Philadelphia.—p. 877.

International Comparison of Roentgen-Ray Units. L. S. Taylor, Washington, D. C.—p. 884.

Studies of Effect of Roentgen Rays on Time of First Cleavage in Some Marine Invertebrate Eggs: I. Recovery from Roentgen-Ray Effects in Arbacia Eggs. P. S. Henshaw, New York.—p. 890.

Lipiodol Injection of Uterine Cavity in Hydatidiform Mole: Case Report. R. L. Lochry, Indianapolis.—p. 899.

Tuberculosis of Vertebral Body.—Doub and Badgley call attention to the fact that the roentgenologist must know the pathologic changes in tuberculosis of the spine and must be able to correlate these with the corresponding roentgen signs. A series of 100 cases are included in their study. The age incidence in the series was studied; the average was found to be 29 years. The average duration of symptoms at the first examination was six and one-half years. The mode of infection is discussed and the hematogenous route is favored, but the lymphogenous route may also play a part. A suggestion is made that in some cases the primary infection may be in the disk. Roentgenologically, the authors distinguish the following types of tuberculous involvement of the body of the vertebra: (1) central type; (2) intervertebral articular type, and (3) anterior type. They tabulate the frequency of the various types of infection according to the location in the spine and find that the central type of lesion is more common in the thoracic area and that the intervertebral type is more common in the lumbar area. The central type causes collapse of the body of the vertebra in a high percentage of cases, while in the intervertebral type the vertebral body form is preserved until late in the disease. Narrowing of the disk is the earliest and most constant roentgen sign in tuberculosis of the spine. Abscess is the most common complication and was found in 84 per cent of the authors' cases at some stage of the disease. Skipped infection, or two areas of infection with normal vertebrae between, was found in 10 per cent of the cases. Concomitant tuberculosis in other parts of the body was found in fifty-three instances. The pulmonary lesion was the most common concomitant lesion and was present in twenty-four cases.

Colon as Studied by Double Contrast Enema.—Gershon-Cohen and Shay state that the double contrast enema aids in the roentgen diagnosis of spasms and adhesions of the colon, it makes possible elimination of errors in diagnosis due to filling defects, the result of incomplete filling and spasm It allows a more conclusive differentiation from the roentgen observations alone between irritable colon and so-called spastic colitis and true inflammatory and ulcerative colitis It is a distinct advance in the roentgen diagnosis of ileocecal tuberculosis, simplifying greatly the procedure of study recommended thus far by the best investigators in this field who have been using the opaque medium by mouth Additional roentgen signs are made available in the diagnosis of chronic ulcerative colitis Additional information is furnished by the double contrast roentgenograms in determining the actual number and extent of diverticula of the colon and the presence or absence of concomitant inflammatory changes in any of them Early neoplastic growths, long before they produce filling defects in the single contrast enema films, are detectable in the double contrast roentgenograms and open the way for the surgeon to go a step further, by their early removal, in the prevention of malignant degeneration The authors recommend the double contrast enema study as an additional routine examination to the ordinary enema study of the colon because it always furnishes a check duplicate study of the colon, it lends confirmatory aid and makes possible the detection of valuable supplementary observations in cases ordinarily studied with difficulty by the single contrast enema, and, lastly, it makes possible the detection of lesions not suspected or demonstrable by the single contrast method alone

Evaluation of High Voltage Roentgen Rays in Therapy of Carcinoma of Cervix.—Behney points out that high voltage roentgen therapy is a distinct addition to the present therapeutic armamentarium for the treatment of carcinoma of the cervix. Used in addition to local radon applications in stage 3 and earlier cases, it will increase the expectancy of life Local irradiation of the growth should be practiced in all cases earlier than stage 4 The therapy of patients whose lesions have advanced to stage 4 should be confined to external short wavelength radiations in the form of high voltage roentgen rays or packs. In late cases this treatment prolongs life, reduces pain, and restores hope Recurrent cases must be individualized and the plan of treatment should depend on the degree of extension of the growth and the general condition of each particular patient.

American Review of Tuberculosis, New York

26: 1-103 (July) 1932

*Nodules of Experimental Tuberculosis in Guinea Pig and Their Relations to Immunity H Sewall, E de Savitsch and C Butler, Denver —p 1.
Experimental Tuberculosis in Albino Rat Comparative Effects of Avitaminosis, Suprarenalectomy and Thyroid Parathyroidectomy on Experimental Tuberculosis. M M Steinbach, New York —p 52
*Fluttering of Abdominal Viscera as Complication Following Left Sided Phrenico-Exeresis G. E Ehrenburg, Spivak, Colo —p 77
Modern Case-Finding in Tuberculosis D S Brachman, Detroit —p 89.
Tuberculosis Among Medical Students J Steidl, Boston —p 98

Nodules of Experimental Tuberculosis.—Sewall and his associates give an account of the development of the primary nodule of tuberculosis in the guinea-pig, with its vascular supply and associated tissue changes. They noted that the incubation period of the primary nodule varies somewhat inversely with the infecting dose and seems shortened by tissue irritation. Apparently, forces of stimulation and inhibition are coordinated in the development of the nodule. Infections with 0 01 mg. of a pure culture of tubercle bacilli may cause slight subcutaneous tissue condensations in advance of nodule formation. Such deposits greatly increased up to the authors' maximum dose of 10 mg. They are of inflammatory origin and are probably due to nonspecific chemical irritation resulting in fixation of the water of edema. With large bacillary doses, from 1 to 10 mg, the acceleration and physical characters of the effects of infection closely resemble those commonly described as peculiar to reinfection. When a guinea-pig is infected in one groin and then on successive days is reinfected in the other, a nodule is formed after the secondary dose similar in physical character and history to the primary nodule. But the incubation period of the second nodule is apparently progressively slightly shortened from the first day, as compared with that of primary infection in the experimental and control animals. When the interval between infection and reinfection reaches about seven days, the latent period of the nodule of reinfection is suddenly greatly decreased, this is about the time required for development of the primary nodule of infection on the opposite side. Thereafter the response to reinfection maintains its acceleration, whatever the interval

Fluttering of Abdominal Viscera.—Ehrenburg reports that roentgen examination in cases in which left-sided phrenic avulsion was performed revealed displacement of the stomach and duodenum to the left and upward. This displacement is considerably greater in inspiration than in expiration. The shape of the duodenum (normally, at roentgen examination, the bulb and pars descendens form a sharp angle) undergoes a considerable change and presents an arch approaching a straight line By comparing the inspiratory and expiratory roentgenograms, one can recognize a swinging of the pylorus and duodenum from right to left and back again, the excursion being about two inches The stomach shows a large bubble of air, which is belched up easily and is replaced in a few seconds. High tonus of the stomach and duodenum is present. The stomach empties rapidly, usually in two hours. The swinging of the duodenum causes a constant irritation of this viscus, which is apparently chiefly responsible for the various manifestations of indigestion These digestive disturbances do not interfere with recovery, though in some cases they are annoying. Light meals at frequent intervals alleviate the symptoms. The author regards "fluttering of the abdominal viscera" as the proper name for this complication.

Annals of Internal Medicine, Ann Arbor, Mich.

5: 1447-1594 (June) 1932

*Experimental Basis for Intravenous Vaccine Therapy in Chronic Arthritis, with Summary of Results Obtained in Patients B J. Clawson and M Wetherby, Minneapolis —p 1447
*Hypertension and Diabetes H J John, Cleveland —p 1462
*Fallacy of Weighed Diet in Treatment of Diabetes Mellitus H. Ulrich, Boston —p 1487
Myxedema Case Report H B Gotten, Memphis, Tenn —p 1492
*Hypothyroidism Without Myxedema J B Youmans and S S Riven, Nashville, Tenn —p 1497
Ventricular Paroxysmal Tachycardia Report of Case E W. Hollingsworth, Hines, Ill —p 1506
Control of Tick Borne Diseases· Methods and Economics N. Toomey, Palmyra, Mo —p 1513
Etiology of Colds J E Walker, Opelika, Ala —p 1526
A Layman Considers Migraine W B Sheppard, Denver —p 1532
Presidential Address American College of Physicians S M. White, Minneapolis —p 1540.

Vaccine Therapy in Chronic Arthritis.—In 301 cases of chronic arthritis, Clawson and Wetherby gave five or more intravenous injections of a streptococcus vaccine at weekly intervals. The organism used in the vaccine was from a case of acute rheumatic fever and had been growing in culture for nine years, was of low virulence, did not agglutinate spontaneously, and was safe for intravenous injections Cross agglutination occurred in high dilutions (1: 50,000) with many other strains of both acute rheumatic and chronic arthritis origins The initial dose was 100 million organisms This was increased by 100 million organisms at weekly injections. As a rule, not more than eight or ten injections were given. Slight reactions with temperature and chills occurred in about 50 per cent of the cases The degree of reaction seemed to have no relation to the clinical improvement. Nearly two thirds of the patients experiencing improvement did so after five injections; nine tenths did so after seven injections. There were only a few cases in which improvement took place if it had not occurred with eight or ten injections. Definite clinical improvement was observed in 80 per cent of the cases.

Hypertension and Diabetes.—John states that the blood pressure in nondiabetic persons rises proportionately higher in the case of obese individuals than in those of normal weight (approximately 12 per cent increase). Reduction in weight in nondiabetic persons brings about reduction in blood pressure. In the author's series of 1,828 cases of diabetes, the blood pressure was the same as in normal persons below and including the fourth decade; above this age the incidence of high blood pressure was greater in diabetic persons. In his series of 443 cases of diabetes associated with hyperthyroidism, 37.6 per cent of the patients had a blood pressure below 140 mm. and 62.4 per cent had a blood pressure above 140 mm., against 54.3 and 45.7 per cent, respectively, in diabetes not associated with hyperthyroidism. In his series of cases the diabetic persons up to 30 years of age showed hypertension only in 9 per cent, whereas in diabetic persons with hyperthyroidism, hypertension was present in 42 per cent of this group of young individuals. Up to the fifth decade, hypertension in itself presents no marked incidence of diabetes; after the fifth decade the incidence rises markedly.

Fallacy of Weighed Diet in Treatment of Diabetes Mellitus.—When Ulrich began to treat diabetes he followed the prevalent custom of prescribing weighed diets, but he soon abandoned that method. During the past ten years he has not asked one of his patients to follow it. He is using more easily understood household measures and natural food units in his dietetic prescriptions and presents a table showing a day's ration by which approximate accuracy is reached without the use of the scales. The percentages of carbohydrate, protein and fat in this table are rough approximations only, but he is confident that they are nearly as accurate as if the food had been weighed with the utmost care. This statement is supported by the results obtained with a group of patients who received an unweighed diet and whose level of the blood sugar was determined on several consecutive mornings before breakfast. A comparison of these results with others obtained with patients receiving a weighed diet showed no significant differences in regard to the daily variations of the blood sugar. The author is aware that dietetic prescriptions by weights and calories are easier for the physician. He uses them constantly in the hospital where the services of a trained dietitian are available. Outside the hospital, however, the burden of translating such a prescription into a day's menu is placed on the patient. A few patients have sufficient leisure, inclination and intelligence to do it in a satisfactory manner; many more have not. They should not be required to perform a task that properly belongs to the physician.

Hypothyroidism Without Myxedema. — Youmans and Riven believe that hypothyroidism without myxedema is a more common condition than is generally appreciated and is not confined to regions where goiter is frequent. Failure to recognize the disease is due to the vague symptomatology and to the fact that the signs and symptoms of myxedema, the better known hypothyroid state, are lacking. The diagnosis depends largely on the detection of an abnormally low basal metabolic rate; but this observation must be interpreted with caution, since low rates are not all due to hypothyroidism. In diagnosis, the nature of the response to thyroid substance, which is specific in true hypothyroidism, is of great importance and serves to distinguish between lowered metabolic rates due to hypothyroidism and those due to other causes.

Annals of Medical History, New York

4: 321-414 (July) 1932

Thomas Dimsdale, M.D., F.R.S. and Inoculation of Catherine the Great of Russia. W. J. Bishop, London, England.—p. 321.
David Gruby. T. Rosenthal, New York.—p. 339.
Life and Times of Dr. William Harvey. W. Herringham, Hampstead, England.—p. 347.
Struensee. W. F. Petersen, Chicago.—p. 364.
Hernia Healers. J. E. Raaf, Rochester, N. Y.—p. 377.
"Original Morton Inhaler" for Ether. G. B. Roth, Washington, D. C. —p. 390.
Notes on Medical History of Bruges and Hospital of Saint John. H. M. Tovell, Toronto, Canada.—p. 398.

Annals of Surgery, Philadelphia

96: 1-160 (July) 1932

*Treatment of Fractures of Neck of Femur. A. B. Gill, Philadelphia. —p. 1.
Knee Joint Arthrotomy. J. J. Moorhead, New York.—p. 17.
Operation for Recurrent Inferior Radio-Ulnar Dislocation. E. L. Eliason, Philadelphia.—p. 27.
Study of Cause of Death Following Burns. W. G. Harrison, Jr., and A. Blalock, Nashville, Tenn.—p. 36.
Embolectomy: Report of Case Involving Femoral Artery. E. Andrews and H. Harkins, Chicago.—p. 40.
Embolectomy with Partial Arterial Occlusion for Embolism of Extremities. H. Neuhof, New York.—p. 44.
Insulin and Surgery. P. D. Abramson, Shreveport, La.—p. 49.
Mortality Resulting from Surgical Treatment of Chronic Gallbladder Disease in Diabetes Mellitus. I. M. Rabinowitch, Montreal, Canada. —p. 70.
*Fat Embolism. R. B. Wright, Baltimore.—p. 75.
One Thousand Spinal Anesthesias, with Especial Reference to Complications and Mortality. H. W. Jones, San Antonio, Texas.—p. 85.
Acute Intussusception in Infancy and Childhood: Review of Sixty-Four Cases. E. W. Peterson and R. F. Carter, New York.—p. 94.
Pericolic Membranes. W. L. Duffield, Brooklyn.—p. 98.
Kerr Technic in Resections of Colon. J. H. Gibbon, Philadelphia.—p. 102.

Fractures of Neck of Femur.—Gill states that, in fractures of the neck of the femur, some patients on admission to the hospital are not fit subjects for any treatment directed toward the reduction and fixation of the fracture. There is a high mortality, probably 25 per cent, when all cases of fracture are included in the statistical tables. The mortality rate increases rapidly beyond the age of 60. Nonoperative methods of treatment of recent fractures will continue to be used in the majority of cases. Of these the Whitman abduction method has given the best results. Open operation should be the method of choice in selected cases. The most common causes of nonunion are failure in making a diagnosis of fracture, and improper treatment in cases that have been correctly diagnosed. But nonunion may be expected in 20 to 25 per cent of the cases treated by the Whitman method or by open operation. The rate is low in patients under 60 years and increases rapidly beyond this age. In ununited fracture, if the head is viable and if a fair portion of the neck has survived, union may be hoped for in 75 to 90 per cent by means of an autogenous bone graft or a Smith-Petersen nail. Satisfactory union should not be expected in the presence of necrosis of the head, and rapid and complete absorption of the neck. For this group of cases a reconstruction operation offers a 75 per cent chance of securing good function in patients under 60 years of age. In patients beyond this age, its advantages are doubtful. Arthrodesis of the hip affords relief to some patients after any or all of the operations mentioned have failed. If it becomes possible to select early in their history those cases that are doomed to failure of union by any method of treatment, an early arthrodesis will avoid months and years of useless treatment and disability.

Fat Embolism.—Wright presents the clinical and pathologic aspects of fat embolism. He reports two cases of this condition, one resulting in death and the other in recovery. A digest of 100 consecutive necropsies as regards this condition is presented. The author believes that fat embolism should be considered in any case in which there are grave or unusual symptoms following trauma, whether the trauma is fracture, contusion, concussion, intravenous therapy, delivery or operation.

Colorado Medicine, Denver

29: 269-308 (July) 1932

Postpneumonic Nonresolution and Syphilis. R. H. Kampmeier, Pueblo. —p. 273.
Indications for Treatment of Obesity. A. Minnig, Denver.—p. 277.
"Cowl Fractures." J. D. Carey, Fort Collins.—p. 280.
Evaporated Milk in Infant Feeding. H. B. Stein, Denver.—p. 281.

Johns Hopkins Hospital Bulletin, Baltimore

51: 1-60 (July) 1932

*Metabolic Changes Following Intravenous Injection of Posterior Pituitary Extracts and Their Correlation with Well Known Pharmacodynamic Actions of Drugs. E. M. K. Geiling and A. M. DeLawder, Baltimore.—p. 1.
Diabetes Mellitus and Myxedema. A. Weinstein, Baltimore.—p. 27.
Tuberculous Infection in Medical Students. N. B. Herman, F. H. Baetjer and J. A. Doull, Baltimore.—p. 41.

Intravenous Injection of Pituitary Extracts.—Geiling and DeLawder present experimental data from which the following conclusions seem warranted: After the injection of solution of pituitary and pitressin there follows for a short period (the stage of maximum action) a state resembling anaerobic metabolism in the tissues drained by the superficial and deep leg veins of dogs. During this time the venous blood is characterized by an arterial-like color and oxygen content, a lowered carbon dioxide tension, a rapidly rising lactic acid concentration, increased dextrose and inorganic phosphate. This is the period of decreased cardiac output and lowered basal metabolism. Following this stage of tissue asphyxia is the recovery period, when conditions are reversed: an abnormally dark venous blood, increased utilization of oxygen and production of carbon dioxide by the tissues, and a continued rise and subsequent gradual return of blood lactic acid to the preinjection level. Blood drawn from the external jugular vein (having a mixed drainage area, brain, muscle, and so on) in the period of the so-called maximum action of solution of pituitary and pitressin indicates a different effect of these drugs in this region. In contrast to the arterial-like leg sample, the jugular blood is more venous in color and has a decreased oxygen content, only a slight, if any alteration in the carbon dioxide concentration, and a lactic acid increase similar to that in the femoral *blood. The return of the basal level roughly parallels the* recovery period indicated in the blood draining the limbs.

Journal of Bone and Joint Surgery, Boston

14: 471-740 (July) 1932

*Correlation of Experimental Streptococcic Arthritis in Rabbits with Chronic Rheumatoid Arthritis. L. G. Hadjopoulos and R. Burbank, New York.—p. 471.
Pathologic Fractures 'in Osteomyelitis. N. Capener, Exeter, England, and K. C. Pierce, Ann Arbor, Mich.—p. 501.
Spondylolisthesis and Vertebral Anomalies in Skeletons of American Aborigines, with Clinical Notes on Spondylolisthesis. R. T. Congdon, Wenatchee, Wash.—p. 511.
*Operative Fusion of Unstable or Flail Knee Due to Anterior Poliomyelitis. M. Cleveland, New York.—p. 525.
*Osteochondritis Dissecans: Clinical Study of Twenty-Four Cases. D. King, Ann Arbor, Mich.—p. 535.
Kyphosis Adolescentium. B. Frejka, Brno, Czechoslovakia.—p. 545.
Excision of Hemivertebrae for Correction of Congenital Scoliosis. E. L. Compere, Chicago.—p. 555.
*Ostearthritis Deformans Contrasted with Ostearthritis Deformans Juvenilis. F. J. Lang, Innsbruck, Austria.—p. 563.
Operative Treatment of Chronic Dislocation of Peroneal Tendons. E. Jones, Los Angeles.—p. 574.
Echinococcus Disease of Bone. B. L. Coley, New York.—p. 577.
Treatment of Fractures of Shafts of Tibia and Fibula. R. W. Jones, Liverpool, England.—p. 591.
Treatment of Osteomyelitis in Warm Salt-Water Pool. A. Brockway, Los Angeles.—p. 611.
Flexion Contracture of Knee. J. Kulowski, Iowa City.—p. 618.
Intermittent Hydrarthrosis. J. L. Porter and R. C. Lonergan, Evanston, Ill.—p. 631.
Fracture of Patella. F. R. Ober, Boston.—p. 640.
"Osteoplastic Cuneiform Osteotomy" in Treatment of Ankylosis. S. Orell, Styrsö, Sweden.—p. 643.
Operation for Reconstruction of Inadequate Acetabulum. J. D. Bisgard, Chicago.—p. 655.
Treatment of Joint Lesions in Hemophilia by Means of Whole Blood from Menstruating Women. M. A. Bernstein, Chicago—p. 659.
Intrapelvic Protrusion of Acetabulum (Otto Pelvis). M. M. Pomeranz, New York.—p. 663.
Arthrokatadysis of Hip Joint. N. A. Cary and L. Barnard, Oakland, Calif.—p. 687.
Tuberculosis of Fifth Lumbar Vertebra with Spina Bifida Occulta: Spinal Fusion and Cure. M. O. Henry, Minneapolis.—p. 690.
Reducing Diet in Orthopedic Surgery. E. S. Geist, Minneapolis.—p. 693.
Unusual Injury to Forearm: Report of Case. Penelope Sherwood, Newburgh, N. Y.—p. 696.
Section of Flexor Tendons of Middle Finger of Left Hand Through Palmar Wound: Primary Suture and Cure. A. Andreasen, Kingston Hill, England.—p. 700.
Hemangiectatic Hemihypertrophy with Subjective Symptoms of Sacro-Iliac Disturbance Due to Abnormal Bony Development: Case. J. E. M. Thomson, Lincoln, Neb.—p. 702.
Osteogenic Sarcoma in Child of Three Years. A. L. Craig, Honolulu, Hawaii.—p. 707.
Analysis of Private Orthopedic Practice. R. Stephens, New York.—p. 712.
Orthopedic Lever for Correcting Deformities of Foot. F. F. Kortlucke, Edinburgh, Scotland.—p. 715.
New Hip Rest for Application of Plaster-of-Paris Spicas or Jackets in Prone or Supine Positions. N. H. Rachlin, Brooklyn.—p. 718.
The Roller Skate as Aid to Active Motion and Muscle Training in Cases of Poliomyelitis. N. H. Rachlin, Brooklyn.—p. 723.

Experimental Streptococcic Arthritis.—By injecting certain mannite-fermenting arthrotropic streptococci, isolated from the blood stream of afebrile arthritic patients, Hadjopoulos and Burbank were able to produce in rabbits pathologic lesions exactly comparable to those found in chronic arthritis in the human being. By incubating the whole joint they were able to demonstrate these infecting organisms in practically all lesions associated with chronic atrophic arthropathies. Streptococci were found in every part of the synovial tissues where pathologic changes could be detected. No streptococci could be demonstrated in compact bone, yet the spread of infection in bone tissue could be traced step by step through its medullary and haversian vascular supply. In the avascular cartilage, the spread of streptococci was through infected bone tissue and synovial infiltration. Normal joints were subjected to the same procedure with uniformly negative results. To complete the picture of infection, the authors have recently studied the tendons and muscles in the immediate neighborhood of arthritic joints. They had no difficulty in demonstrating streptococci in tendons at the zone of nuclear proliferation. Muscles were extensively infiltrated with streptococci at their sheaths, but in spite of great care the possibility of outside contamination in surface areas must be considered. Throughout this study the progress of the disease could always be traced directly to the terminal blood vessels, as is true in all infections of hematogenous origin. Despite the specific selectivity of the arthrotropic streptococci used in these experiments, internal organs, especially the liver and kidneys, were not exempt from pathologic changes of toxic nature involving their parenchyma. Nevertheless, streptococci could be demonstrated in the interlobular connective tissue of the liver, and occasionally even in the hepatic vessels. This observation is highly significant in that it forcibly brings home the fact that chronic rheumatoid arthritis is fundamentally a systemic disease, and it explains the transient septicemias that occur intermittently in the course of the infection.

Operative Fusion of Flail Knee Due to Anterior Poliomyelitis.—Cleveland presents an analysis of the end-results of ninety operations for fusion of an unstable knee due to anterior poliomyelitis. The operation was without risk and resulted in no appreciable shortening of the leg. All but a small number of the patients were pleased with the end-results. They were able to discard their braces and walk better. Eighty-five per cent of them had good or excellent cosmetic and functional results. In the younger patients, aged 13 years and less at the time of operation, postoperative deformity-flexion and knock-knee are apt to occur. This is apparently due to gravity and unopposed action of the hamstring muscles on ununited epiphyses. Failure of fusion occurred in but two cases and was easily corrected by operative revision. The best results are obtained in patients with paralysis limited to one leg, but the patients with both extremities involved are greatly benefited.

Osteochondritis Dissecans.—King points out that osteochondritis dissecans occurs primarily in males in the second decade of life and is characterized by death of a special portion of the epiphyseal nucleus and articular cartilage of the knee and elbow joints. Other joints may be affected. The *condition was bilateral in 20* per cent of the author's cases. There is a great tendency to loose-body formation. A clinical history of recurrent locking in a young man, without a history of trauma severe enough to cause a fractured cartilage, suggests osteochondritis dissecans. The diagnosis is rarely made on history and clinical examination alone; roentgen examination is diagnostic. The presence of loose bodies in a knee or elbow joint, whose source is not obvious, suggests a previous osteochondritis dissecans. Radical operation gives a good result in 88 per cent of cases. Slumbering osteochondritis dissecans should be treated conservatively without operation, as spontaneous healing has been demonstrated in these cases. Long-standing cases with many free bodies and severe arthritis may not be cured by operation, because many of the subjective symptoms are due to the accompanying arthritis.

Ostearthritis Deformans and Ostearthritis Deformans Juvenilis.—Lang states that there are no fundamental differences between arthritis deformans of the adult and juvenile arthritis deformans. Both types of the disease originate after damage to the articular and joint cartilage with subsequent loss of its elasticity. This loss of elasticity removes the protection that the normal cartilage affords to the subchondral bone against functional and mechanical influences. As a causative agent for arthritis deformans in adults, the damage to the cartilage, resulting from excessive strains, is of primary importance In juvenile arthritis deformans, direct and indirect traumatic damages to the cartilage and, especially, to the osteochondral junction are held responsible The decisive factor for the progressive course of both types of arthritis deformans is the action of the functional requirements which, acting as a *source of constant irritation, forms the basis for* the progressive character of the disease

Journal of Clinical Investigation, New York

11: 647 870 (July) 1932

- Effect of Injection of Nonspecific Protein on Pain of Ulcer and on Gastric Secretion Clinical and Experimental Study F R Vanzant and A M Snell, Rochester, Minn —p 647
- Metabolism of Leukocytes from Normal and Leukemic Blood L J Soffer and M M Wintrobe, Baltimore —p 661
- Lipid Content of Tumors M Yasuda and W R Bloor, Rochester, N Y —p 677
- Plasmapheresis Edema I Relation of Reduction of Serum Proteins to Edema and Pathologic Anatomy Accompanying Plasmapheresis D C Darrow, E B Hopper and M Katharine Cary, New Haven, Conn —p 683
- Id II Effect of Reduction of Serum Protein on Electrolyte Pattern and Calcium Concentration D C Darrow, E B Hopper and M *Katharine Cary, New Haven, Conn —p 701*
- *Passage of Fluid and Protein Through Human Capillary Wall During Venous Congestion E M Landis, L Jonas, M Angevine and W Erb, Philadelphia —p 717
- Study of Protein Lipid Combinations in Blood and Body Fluids I Normal Human and Dog Plasma and Horse Serum Mary E Turner and R B Gibson, Iowa City —p 735
- *Blood Uric Acid in Disease E P Jordan and Dorothy Gaston, Chicago —p 747
- Study of Gastric Secretion in Hyperthyroidism Before and After Operation W R Berryhill and H A Williams, Cleveland —p 753
- Thyroid Hyperplasia Produced in Chickens by Ultraviolet Light Deficiency K B Turner and Ethel M Benedict, New York —p 761
- Lactic Acid in Blood of Resting Man A V Bock, D B Dill and H T Edwards, Boston —p 775
- *Study of Circulation in Obesity S H Prodger and H Dennig, Heidelberg, Germany —p 789

Human Capillary Wall During Venous Congestion — Blood samples removed from the arm veins during graded congestion *were compared by Landis and his associates in order to* measure the filtration of fluid resulting from the increased venous pressure The loss of protein through the capillary wall was estimated at venous pressures of 80, 60 and 40 mm of mercury Comparison of hemoglobin readings and red cell counts showed that during venous congestion the fluid is lost chiefly from the plasma The loss of fluid could be detected at venous pressures as low as 20 mm of mercury and amounted to between 0 0 and 2 3 cc per hundred cubic centimeters of blood The amount of fluid lost from the blood was conspicuously greater at higher venous pressures, venous congestion of 80 mm of mercury filtered as much as 19 5 cc per hundred cubic centimeters of blood At a venous pressure of 80 mm of mercury, protein was lost from the blood plasma in an amount indicating that the capillary filtrate contained an average of 1 5 per cent of protein At a venous pressure of 60 mm of mercury, very little protein loss could be detected and the capillary filtrate contained an average of 0 3 per cent of protein The authors describe two cases of edema in which edema fluid was collected during venous congestion The protein content of the edema fluid was 0 39 and 0 09 per cent, indicating that the capillary wall retained approximately 95 per cent of the plasma protein

Blood Uric Acid in Disease —*Jordan and Gaston state* that, with the discovery of the uric acid diathesis in gout, attention was focused on purine metabolism Further studies have indicated that the relationship between uric acid retention and gout is not as simple as at first believed Observers have reported considerable variation in the amount of blood uric acid under normal conditions as well as in diseases other than gout The significance of these observations is not as yet thoroughly undersood *Although mention of gout in the* contemporary American literature is unusual, it has been the authors' experience to find the condition among Chicago patients with greater frequency than was anticipated Whether a similar incidence of gout occurs in other parts of the country would be a matter of interest The amount of uric acid in the blood under normal and pathologic conditions is a matter of basic importance The more accurately the determinations can be made, the sooner will the understanding of purine metabolism approach scientific precision By Folin's method most, if not all, patients with gout will show blood uric acid values above a range which the authors accept as normal The difficulty in diagnosis lies in distinguishing the higher values obtained in conditions other than gout Most of such high values have occurred in the various conditions already known to be at times associated with high blood uric acid

Circulation in Obesity.—Prodger and Dennig studied various phases of the circulation in a group of obese patients who had no demonstrable pathologic changes in the circulatory system, chiefly in their response to mild exercise in the form of walking on a treadmill The results were compared with the results in a group of normal persons The responses of the cardiac output and arteriovenous oxygen differences to exercise were similar in the two groups The chief differences between the two groups were found in the vital capacities, and in the pulse rates, respiratory rates, blood lactic acid changes, oxygen consumptions, and oxygen debts in exercise On the basis of their observations the authors believe that the symptoms which are so commonly associated with cardiac insufficiency and which are frequently observed in cases of simple obesity are not due to an inefficient circulatory response but rather to mechanical and chemical disturbances associated with obesity

Michigan State M. Society Journal, Grand Rapids

31 437 508 (July) 1932

- Acute Epidemic Encephalitis F P Currier and D B Davis, Grand Rapids —p 437
- *Routine Use of Filament Nonfilament Count W S Reveno and M S Berent, Detroit —p 443
- **Report of Series of Cases of Bougie and Bag Inductions of Labor* G A Carmichael, Ann Arbor —p 449
- Actinomycosis Primary in Ovary Case Report C E Boys, Kalamazoo —p 453
- Spinal Anesthesia in Cases of Emergency Surgery E G Krieg, Detroit —p 456
- Rural Obstetrics Analysis of Five Hundred Cases C F Dubois, Alma —p 462
- Kidney Infections of Adolescent Female R I Cowen Detroit —p 469
- Asphyxia Neonatorum H Henderson, Detroit —p 471
- Relationship of Laryngeal Paralysis to Medicine and Surgery E E Poos, Detroit —p 477
- Report of Three Cases of Trichiniasis with One Death C N Sowers, Benton Harbor —p 479
- Primary Carcinoma of Liver in Infant Case M Pierson and Mary Campbell, Detroit —p 482
- Michigan's Department of Health C C Slemons, Lansing —p 483

Filament-Nonfilament Count.—In a study conducted on 100 patients, Reveno and Berent found that the determination of the percentages of the nonfilamentous and filamentous neutrophils, lymphocytes, monocytes, eosinophils and basophils, by counting 100 consecutive leukocytes, lends itself readily for routine clinical use Much may be learned as to diagnosis and treatment by the use of this method of studying the blood picture Changes in the percentage of the young polymorphonuclear neutrophils (nonfilaments) often precede changes in the physical signs and symptoms as well as total cell count changes In the absence of clinical symptoms, nonfilament deviations from the normal should not be ignored In acute clinical conditions in which the percentage of nonfilamentous neutrophils does not exceed 16, it may be safely assumed that infection is not present A nonfilament percentage of 50 or over is indicative of a poor prognosis Failure of the nonfilament percentage to return to the normal level of from 8 to 16 is a sign of persisting infection The percentage of small lymphocytes is depressed during the acute stage of an infection and rises with recovery, in many instances preceding the onset of convalescence and running parallel with it The authors believe that because of the ease with which it can be performed and because of its great value to the clinician, the filament-nonfilament count should be adopted as a routine procedure in place of the ordinary differential count

Induction of Labor —According to Carmichael, multiparas respond to bougie induction of labor in a slightly greater percentage of cases than do primiparas Multiparas respond to bag induction of labor in a definitely greater percentage of cases than do primiparas The bag is a more rapid method and a more certain method of inducing labor than is the bougie The morbidity in bag induction of labor is slightly greater than in the bougie method The fetal mortality is greater in bag induction of labor than in the bougie method. The incidence of operative intervention is not increased in labors induced by the bougie method The operative intervention incident with bag induction of labor is nearly three times as great as in cases induced by the bougie method.

Military Surgeon, Washington, D. C.

71: 1-120 (July) 1932

*Chronic Bronchiectasis. H P Marvin —p 1
Comments on Proposed Casualty Clearing Station J W Grissinger. —p 16.
Rôle of Lipoidal Substances in Complement Fixation Preliminary Study. W. S Stone —p 61
Asthma and Hay Fever Clinic, Fort Sam Houston S W. French —p. 67.

Chronic Bronchiectasis.—Marvin reports that, although the treatment of bronchiectasis at Fitzsimons General Hospital, Denver, has been conservative, with little experience in the operative procedures now being used at some clinics in the more severe cases, the results have been reasonably satisfactory. Infective foci, especially sinuses, are given early attention. Postural drainage is started at the earliest opportunity and is practiced at least two or three times a day in all cases and as often as every hour in patients severely afflicted. An adjustable table drainage apparatus and a "horizontal bar," or so-called jack-knife drainage method, both of which have their advantages, are used These appliances were constructed at the hospital, the former having been in use for the past six years and the latter during the past year The so-called adjustable table method is rather more comfortable for the patient to use but is not as effective in completely emptying the material from the cavities as the "jack-knife drain" The table requires from twenty to thirty minutes as a rule for maximum results, whereas the bar drain requires but three to five minutes and has the advantage of mechanically compressing the lower thorax. These methods of drainage insure a more complete emptying of the bronchiectatic cavities than leaning over the side of a bed or chair, such as must be practiced by the strict bed patient or by patients in their own homes The important thing is to empty these cavities of secretion as completely as possible and keep them as nearly empty as practicable at all times. Aspiration by means of the bronchoscope is more effective in most cases than the postural method, especially when the secretions in the bronchial dilatations have become very tenacious or so hard and crusted as to require softening by injecting some liquid before suction can remove them.

Minnesota Medicine, St. Paul

15: 455 508 (July) 1932

Medicine and Public Welfare M S Henderson, Rochester —p 455
Acute Appendicitis Review of Its Symptoms, Diagnosis and Treatment Statistical Report of Three Hundred and Forty Six Consecutive Cases of All Types O W Holcomb, St Paul —p 458
*Perforating Lesions of Large Intestine J A Bargen and F. W Cox, Rochester —p 466
*Clinical Significance of Melena. J. M Berkman, Rochester —p 469
United States Public Health Service Helen H Hielscher, Mankato —p 471
Certain Types of Diarrhea of Uncertain Etiology P W. Brown —p 476
Differential Diagnosis of Jaundice, with Especial Reference to Congenital Hemolytic Jaundice Report of Case M Barron, Minneapolis —p 479
Treatment of Head and Spine Injuries R Early, St Paul —p 484
Development of Transurethral Prostatic Resection H C Bumpus, Jr, Rochester —p 489
Double Uterus and Vagina with Unilateral Atresia D A MacDonald, Minneapolis —p 491.

Perforating Lesions of Large Intestine.—Bargen and Cox describe their observations in fifty cases of perforating lesions of the large intestine In the fifty cases the perforations were all due to diverticulitis or to carcinoma This was confirmed either at operation or at necropsy Symptoms suggestive of perforation were present in all cases; they differed from those common to the various forms of acute, subacute and chronic obstruction of the colon. Clinical, preoperative and historical data were available in only thirty of the cases of diverticulitis and in nineteen of the cases of carcinoma. In the fiftieth case there was a perforating carcinoma at the splenic flexure and a perforative type of diverticulitis with formation of abscess in the descending colon, thus there were fifty-one lesions in the fifty cases. Pain was the most common symptom, being present in twenty-six of the thirty-one cases of diverticulitis, and ranging in degree from slight pain in eight cases to severe pain which could be classified as acute in twenty-three cases. In thirteen of the cases of carcinoma, pain was severe enough to be called acute; in one case the pain was less severe, and in the other six cases pain was not a prominent symptom. Fever was present in twenty-one cases of diverticulitis; it was associated with chills in nine cases. In ten of the cases, the temperature ranged from 100 to 104 F.; in seven of these it was 102 or more. In twelve cases of carcinoma there was a history of fever; in five it was associated with chills. The temperature in these cases was lower; in only three was it more than 101 F. Vomiting was present in five cases of diverticulitis and in two cases of carcinoma An abdominal mass was present and palpable in twelve of the cases of diverticulitis and in eight of the cases of carcinoma. In only one of these was the mass palpated by vagina. In one case of diverticulitis, blood was present in the stools at the time of onset of pain, and in one case "inky" stools were passed. In the whole group there were sixteen vesicosigmoid fistulas, only two of which were caused by carcinoma, the other fourteen originating in the perforating diverticulitis The site of the lesion undoubtedly was a factor in this incidence. In thirty of the cases of diverticulitis the lesion was in the sigmoid, and in only six of the cases of carcinoma was the lesion in the *sigmoid* Additional symptoms in these cases were urinary frequency, dysuria, and the passage of blood, pus, feces and gas by the urethra The duration of these symptoms ranged from two weeks to five years, but in most cases the fistula had been present less than nine months.

Clinical Significance of Melena.—Berkman is of the opinion that, in a surgical exploration for the source of gastro-intestinal hemorrhage in which the bleeding lesion is not found, the abdomen should not be closed until the stomach has been opened and explored for intrinsic lesions In cases of recent hemorrhage, a healed or chronic duodenal ulcer should not necessarily account for the hemorrhage. Infrequently gastro-intestinal hemorrhage occurs from esophageal varices in the presence of cirrhosis of the liver which is impossible to diagnose clinically The hemorrhage is usually manifested by hematemesis and rarely by melena alone. In all cases of recurrent gastro-intestinal hemorrhage, surgical exploration should be done, and in many cases of indeterminate gastro-intestinal hemorrhage it might be extremely detrimental to the patient not to explore surgically because of only one attack of hemorrhage.

Nebraska State Medical Journal, Lincoln

17: *269 316 (July) 1932*

Indications for and Results of Surgical Treatment of Pulmonary Tuberculosis T J Kinsella, Oak Terrace, Minn —p 269
Mechanical Considerations of Inspiration During and Following Operations C A Roeder, Omaha —p 275
Elks Crippled Children's Clinics F W. Buckley, Beatrice —p 280
Anterior Poliomyelitis Diagnosis, Prognosis and Treatment. F. S Clarke, Omaha —p 283
Spinal Anesthesia G C Kirk, Lincoln —p 286
Hemorrhoids, Their Treatment by Both Operative and Injection Methods, and Results to Be Expected Following Their Treatment L E Moon, Omaha —p 289
Diagnostic and Therapeutic Injection of Sympathetic Nervous System W D Abbott, Des Moines, Iowa —p 293
Report of Delegate to A M A Congress on Medical Education and Hospitals J S Welch, Lincoln —p 296
Early Surgeons and Surgical Operations in Nebraska H. W. Orr, Lincoln —p 300
Ruptured Aneurysm of Abdominal Aorta Simulating Perforated Gastric Ulcer E A Watson, Grand Island, and R. S Cram, Burwell —p 303

New England Journal of Medicine, Boston

206: *1281-1330 (June 23) 1932*

*Angina Pectoris and Its Treatment. F. M. Howes, New Bedford, Mass —p 1281
Precordial Pain and Tenderness P D White, Boston —p 1283
Mechanism of Edema Formation F Fremont Smith, Boston —p 1286
Drug Treatment of Edema in Congestive Heart Failure. H D Henderson, Holyoke, Mass —p 1286
Local Treatment of Edema in Congestive Heart Failure. B E Hamilton, Boston —p 1290.

Angina Pectoris.—In discussing the surgical treatment of angina pectoris, Howes states that three types of operation are performed; namely, cervical sympathectomy, paravertebral injections of alcohol, and the newer operation of dorsal sympathectomy These operations should be done on carefully selected patients only The rapidly developing type with the threat of approaching thrombosis should be excluded If the patient is in good condition, the more extensive operation of dorsal sympathectomy is the one of choice because of the resulting freedom from the annoying numbness and paresthesia that follow alcohol injections If the patient's condition seems not to warrant so extensive a procedure, injection of the dorsal sympathetic ganglions with alcohol is safe in the hands of the surgeon who is skilful in the technic The author believes it is not yet fully established whether the operation may not, in addition to preventing the sensation of pain, produce some permanent coronary dilatation and have some nitrite-like effect in preventing the ischemia, which is the cause of the pain Recently he had a patient who had four years of freedom from pain as the result of cervical sympathectomy but who had terrific pain when he finally developed thrombosis The author believes that even if some patients die sooner because they do not have the warning that pain gives to overexertion, the mental relief to them to be free from pain and the anticipation of it is well worth a few months of their lives

206 · 1331 1382 (June 30) 1932

Surgical Treatment of Pulmonary Tuberculosis M H Joress, Boston —p 1331
*Practical Aspects of Psychiatry for General Practitioner L C Marsh, Worcester Mass —p 1337
Medical Publicity by Organizations and Individual Physicians I Galdston, New York —p 1359
Medical Publicity and Advertising M Fishbein, Chicago —p 1361

Practical Aspects of Psychiatry.—Marsh points out certain practical aspects of psychiatry applicable to the work of the general practitioner Because of the failure of many medical schools to teach psychiatry, or to teach it in an engaging fashion, physicians have frequently failed to see the psychiatric implications of their cases There are practical applications of psychiatry to everyday life Psychiatry is merely a system of care and treatment for the human personality Practical psychiatric suggestions are offered for the examining room and bedside in the tasks of history taking, examination, diagnosis and treatment of patients Attention is called to the psychiatric angle of the common illnesses and surgical conditions

New Orleans Medical and Surgical Journal

85 · 1 82 (July) 1932

Selection of Anesthetic Agent or Method C F McCuskey, Rochester, Minn —p 1
Simplified 'Ligation in Treatment of Appendectomy Stump Results in Five Hundred Cases A B Carney Clarksdale, Miss —p 9
Rabbit Ovulation Test in Diagnosis of Pregnancy E L King and J A Lanford New Orleans —p 11
*Significance of Splenomegaly I Cohn, New Orleans —p 15
Subphrenic Abscess Clinical Study W S Kerlin, Shreveport, La —p 19
Treatment of Empyema by Aspiration and Air Replacement R R Roberts New Orleans —p 28
Tonsillectomy with Some of Its Peculiarities C J Landfried, New Orleans —p 31
Chaulmoogra Oil in Eye, Ear, Nose and Throat T J Dimitry, New Orleans —p 36
Histamine in Asthma N F Thiberge, New Orleans —p 39

Significance of Splenomegaly—Personal experience with a group of cases in which splenomegaly was a prominent manifestation has impressed Cohn with the fact that there are several points which should be of great practical value Splenomegalies associated with acute febrile reaction are rarely benefited by splenectomy Splenomegalies associated with lymph node enlargements (Hodgkin's disease, lymphatic leukemia, tuberculosis and syphilis) are not to be considered as surgical cases Gastric hemorrhages are often allowed to cloud the issue and an unwarranted conclusion is arrived at that the disease is primarily in the stomach when in reality it may be secondary to the engorgement of the portal circulation in the case of polycythemia or late Banti's disease and pernicious anemia Secondary anemias are often treated without reference to the etiologic factors If these cases were thoroughly investigated, probably more early splenic anemias would be brought to light Earlier surgical intervention offers the patient more hope for an eventual recovery Hemorrhagic purpura is curable in a spectacular way by splenectomy Serums and calcium salts are of no value in the treatment of true purpura Splenectomy is not to be considered primarily as the treatment for splenomegalies Splenomegaly in some instances is the result of diseases which are curable by splenectomy

New York State Journal of Medicine, New York

32 · 773 838 (July 1) 1932

*Herpes Zoster Report of Case of Palm and Two Fingers, and Fifteen Other Cases, Treated with Pituitrin H D Niles, New York —p 773
Unclassified Acute Anemia with Recovery N N Stark and N Strauss, New York —p 777
*Effect of Pregnancy on Sugar Tolerance of Diabetics W S Collens and I E Shack, Brooklyn —p 780
Trends in Childhood Mortality in New York State (Exclusive of New York City) Elizabeth Parkhurst, Albany —p 785
Hearing Survey, Public Schools, Albany, N Y E M Freund, Albany —p 791
Oral Focal Infection Under What Conditions Should Pulpless Teeth Be Removed? H R Miller, New York —p 796
Division of Cancer in Department of Hospitals J G W Greeff, New York —p 799
Hepatic Abscess Due to Reflux of Duodenal Contents Following Cholecystectomy H M Feinblatt, Brooklyn —p 801
*Choice of Instrument in Delivery with Forceps E H Dennen, New York —p 802

Herpes Zoster.—Niles reports that of the sixteen patients with herpes zoster whom he treated with solution of pituitary, eleven were well in an average of eight and one-half days, two were improved, two were unimproved, and in one the result was unknown Of the same number of patients treated by other methods, five were well in an average of eleven days, one was improved, four were unimproved, and in six the result was unknown The injections of solution of pituitary were given intramuscularly every other day With the exception of one case, three injections were sufficient, 0 5 cc was given to elderly patients for the first injection and 1 cc to the middle aged and younger All except four patients received 1 cc at the time of the second and third injection The author used both surgical and obstetric solution of pituitary Although the former is considered to be stronger than the latter, he could not see any difference in the results obtained None of the patients experienced any unfavorable local or general reaction, although several were elderly and suffered from intercurrent diseases This treatment can be given safely to patients and to those suffering from hypertension, cardiac disease or diabetes It is not necessary to delay or discontinue the injections because of menstruation, but they should never be given during pregnancy

Effect of Pregnancy on Sugar Tolerance of Diabetic Persons.—According to Collens and Shack, the dextrose tolerance of a pregnant diabetic woman becomes progressively diminished with advancing pregnancy There occurs in the first few days of the puerperium a transitory period during which the sugar tolerance increases to such an extent that the patient can be considered nondiabetic This period lasts only from one to three days The experience of pregnancy seems to reduce permanently the sugar tolerance of a diabetic woman However, diabetes is not a contraindication to pregnancy alone, for under modern methods of management there are no complications which are intrinsically the result of the diabetic state

Choice of Forceps in Delivery—Dennen states that in a proper case for delivery with forceps the two essential requirements are an accurate cephalic application and traction in the axis of the pelvis A correct diagnosis must be made of the amount of molding, position and station of the head, and type of pelvis Molded heads require a blade with a long, shallow cephalic curve Axis traction diminishes the amount of effort and injury and is desirable in any station of the head The large variety of instruments in use shows that there are no universal forceps In most anterior positions, the Simpson type of blade, with some form of axis traction, is desirable In most posterior and transverse positions, the Kielland forceps seem to be the choice Rotation manually, or with the Barton forceps or the solid blades, may be used in some cases A high transverse head, with a posterior parietal presentation in a flat pelvis, requires the Barton forceps In face presentations, with the chin posterior, the Kielland forceps, and, on aftercoming heads, the Piper forceps offer advantages The author describes new traction curve forceps that may be used in anterior positions of the occiput

Occupational Therapy and Rehabilitation, Baltimore

11: 155 232 (June) 1932

Sublimation in Occupational Therapy C P Oberndorf, New York —p 155
Borzoi Suggestions for New Rallying of Occupational Therapy I C Marsh, Worcester, Mass —p 169
Altro Workshops Sheltered Workshop for the Tuberculous E Hochhauser —p 185
Applied Psychology in Occupational Treatment Frances E Wood, Waverly, Mass —p 195
Organizing Preventorium for Children Mary P Diaz, Porto Rico, West Indies —p 199
Occupational Treatment for Crippled Children Irene Obrocl, Oklahoma City —p 203

Philippine Islands M. Assn. Journal, Manila

12: 53 96 (Feb) 1932

Modern Treatment of Tuberculosis A Trepp, Manila —p 53
Nephritis in Filipinos Clinical Analysis Based on Six Hundred and Fifty Nine Cases A B M Sison and M Ignacio Makalintal, Manila —p 66
Abdominal Pregnancy at Twenty Months Report of Case G Rustia, Manila —p 74

Porto Rico J. Pub. Health & Trop. Med., San Juan

7: 405 475 (June) 1932

Parasitology in Its Relation to Other Sciences M C Hall, Washington, D C —p 405
Studies on Cultivation of Parasitic Intestinal Protozoa H A Poindexter, New York —p 417
Nutritional Studies of Foodstuffs Used in Porto Rican Dietary II Proximate and Ash Analyses C L Cintron and D H Cook, San Juan —p 435
Isohemagglutination and Blood Grouping Their Relation to Transfusion Report of Five Thousand One Hundred and Thirty Five Blood Groups in Porto Rico A Serra, San Juan —p 445
Fusospirochetal Infection of Vagina Report of Case Occurring in Porto Rico O C Mandry, San Juan —p 455

Psychiatric Quarterly, Albany, N. Y.

6 191 395 (April) 1932

Treatment of General Paralysis by Radiothermy L E Hinsie and J R Blalock New York —p 191
State Institution Libraries R Woodman Middletown N Y —p 213
*Life Tables for Patients with Mental Disease B Malzberg —p 226
The Art of Occupational Therapy H M Pollock —p 242
Discussion of Some Topics Illustrating the Internist s Approach to Psychiatric Problems M M Harris New York —p 250
Psychiatry and the Psychogalvanic Reflex ' C Landis —p 262
*Use of Sodium Amytal in Treatment of Psychoses V F Murray and Maudie Marie Burns Poughkeepsie, N Y —p 273
Sodium Amytal Narcosis as Therapeutic Aid in Psychiatry R W Bohn, Helmuth, N Y —p 301
*Present Status of One Hundred and Eighty One Cases of General Paralysis Four or More Years After Treatment with Malaria A M Stanley, Buffalo —p 310
Adjustment Versus Recovery R D Helmer, Utica, N Y —p 314
Lead Poisoning Histopathologic Study of Nervous System of Cats and Monkeys in Acute and Subacute Stages A Ferraro, New York, and R Hernandez, Nashville, Tenn —p 319

Life Tables for Patients with Mental Disease.—Malzberg presents tables showing that the rates of mortality at corresponding ages are from three to six times as great among patients with mental disease as among the general population The higher rates of mortality result in a rapid reduction in the life table populations of the patients with mental disease, 25 per cent dying in from 4 to 6 years, 50 per cent in from 13 to 17 years, and 75 per cent in from 28 to 29 years In the general population, the corresponding periods would be about 32, 48 and 56 years, respectively Such heavy mortality results in a reduction of approximately 18 years and 14 years in the life spans of the male and female patients, respectively There are differerences in the direction of the trends of the mortality rates in the early years, rates among patients decreasing whereas those in the general population increase steadily The male patients have an expectation of life of 19 17 years at 20 years of age, compared with 18 06 years among females At 22 years of age, the expectations are 19 02 and 18 18 years for males and females, respectively In the general population, in 1920, the corresponding expectations at the age of 22 were 41 40 and 42 98 years

Use of Sodium Amytal in Treatment of Psychoses.—Murray and Burns do not feel that sodium amytal affects the fundamental course of psychoses, except in improving the physical condition of the patient by diminishing the activity, and in producing a better contact between the patient and the physician In their series of cases there is only one in which the course of an acute mania seemed definitely shortened The authors feel definitely that the main effect of this treatment is to increase the accessibility of the patient, and that the beneficial results, when obtained, are due to some form of psychotherapy made possible by this The narcosis checks the excitement or removes inhibitions, and enables the patient to get hold of himself to some extent If, at this point, the physician succeeds in establishing a rapport and maintaining it, good results may be expected

Dementia Paralytica—Stanley reports the results in 181 cases of dementia paralytica in which the patients were treated by malaria fever therapy from August, 1924, to November, 1927 According to the hospital records in 1931, fifty-two of these patients on discharge had been considered to show complete remission and fifteen partial remission A complete survey from three to seven years after discharge of the patients with complete or partial remission showed that now only seventeen cases could be considered complete remissions Eight patients had died, three had been returned to a mental institution, and twenty could not be located In the seventeen cases of complete remission from three to seven years after discharge, eight of the patients had had follow-up treatment with tryparsamide The author concludes that many patients discharged from the hospital as in a condition of complete remission tend to show relapses, and that one can get the best results by combining malaria and tryparsamide therapy One should also make some provision whereby one is sure that these patients discharged from the hospital will be properly supervised and treated over a period of at least three years, as it is pretty generally accepted that cases showing positive serologic changes, though clinically a remission, tend to relapse unless treated

Southern Medical Journal, Birmingham, Ala.

15: 679 784 (July) 1932

One Hundred and Twenty Six Cases of Ovarian Carcinoma Treated by Radiation W Neill, Jr , Baltimore —p 679
Treatment of Peptic Ulcer by Resection of Stomach B Brooks, Nashville, Tenn —p 682
Neuro Anemic Syndrome Addison Biermer Type of Anemia with Incipient Funicular Myelopathy Treated by Parenteral Administration of Liver Extract (Gansslen, Castle) L F Barker, Baltimore —p 687
Abdominal Symptoms in Manifest Heart Disease E F Horine and M M Weiss, Louisville, Ky —p 692
Carcinoma of Prostate Clinical and Pathologic Study J A C Colston and L G Lewis Baltimore —p 696
Conservative Management of Commoner Complications of Pregnancy S C Cowan, Nashville, Tenn —p 704
Early (Subclinical) Syphilitic Aortitis Evaluation of Radiographic Diagnostic Methods C G Blitch, Jacksonville, Fla , H J Morgan and H T Hillstrom, Nashville, Tenn —p 709
Syphilis of Heart and Aorta Report of One Hundred Cases with Autopsy Observations O S Warr, Memphis, Tenn —p 711
Syphilis of Stomach Report of Case Treated with Bismuth E L Rice and L M Blackford, Atlanta, Ga —p 717
Cosmetic Eruptions E S Lain, Oklahoma City —p 718
Obstructive Dyspnea Bronchoscopic Observations, Types, with Illustrative Cases G Tucker, Philadelphia —p 723
Successive Bronchial Foreign Bodies C N Peeler and V K Hart, Charlotte N C —p 729
Treatment of Essential Hypertension by Roentgen Radiation of Medulla Oblongata W M Yater, F O Coe and I Rodis, Washington, D C —p 730
Special Medical Problems of Colored Woman C J Miller, New Orleans —p 733
Fractures of Shaft of Femur S O Black Spartanburg S C —p 739
Fractures of Pelvis G W Leadbetter, Washington, D C —p 742
Hernia in Railway Surgery E T Newell Chattanooga, Tenn —p 746
Primary Ophthalmic Tularemia Report of Five Cases with Pathology of Eye R M Armstrong and C N Kavanaugh, Lexington, Ky —p 749
Headache and Brain Tumor G Anderson, New Orleans —p 752
Indolic Autointoxication J R Verbrycke, Jr , Washington, D C —p 754
Anorexia Daily Clinical Problem W Quillian, Miami Fla —p 759
Dental Conditions in Children Their Importance to Pediatrist C B Bray, Birmingham, Ala —p 763
Service of State to Local Health Departments H S Mustard and W K Sharp Jr , Nashville, Tenn —p 766
Congenital Absence of Part of Abdominal Wall H A Gamble, Greenville Miss —p 771
Laboratory Aids in Diagnosis of Typhoid and Related Fevers G A Denison Birmingham Ala —p 772
Postgraduate Study of Pediatrics D L Smith, Spartanburg, S C —p 773
Hospital Policies and Pocketbooks B C MacLean, New Orleans —p 776

Southwestern Medicine, Phoenix, Ariz.

16: 233-272 (June) 1932

President's Address. C. Gunter, Globe, Ariz.—p. 233.
Country Doctor of the Future. F. D. Vickers, Deming, N. M.—p. 236.
*Immunization Against Diphtheria. M. S. Gaede, Jerome, Ariz.—p. 238.
Industrial Surgery and Industrial Commission. B. H. Clingan, Phoenix, Ariz.—p. 245.
Rupture of Pregnant Uterus in Trial Labor, with Previous Cesarean Scar Intact: Case. C. E. Yount, Prescott, Ariz.—p. 252.

Immunization Against Diphtheria.—Gaede records results obtained with diphtheria toxoid in the active immunization against diphtheria and compares them with those obtained with toxin-antitoxin. In 103 Schick-positive children, three injections at weekly intervals of commercial toxin-antitoxin produced 68 per cent negative Schick reactions from three to six months after the final injection. In 504 Schick-positive individuals, two injections of diphtheria toxoid at intervals of from three to four weeks gave a negative Schick test from two to three months after the last injection in 86.2 and 93.1 per cent of the cases. In 112 preschool children, two injections of diphtheria toxoid produced a negative Schick test in only 76 per cent. The reason for such a low immunity response in this group has not been definitely determined. The advantages of diphtheria toxoid over toxin-antitoxin in the prophylaxis of diphtheria are threefold: (1) the larger percentage of negative Schick tests obtained after the injections of the material, with a greater rapidity of establishing this immunity; (2) the avoidance of possible serum sensitization in the subject immunized, and (3) the greater stability of the preparation and its absolute innocuousness. The disadvantage of diphtheria toxoid, compared with toxin-antitoxin, lies chiefly in the questionably more frequent occurrences of local and general reactions resulting from the injections. This, however, can be obviated by excluding those individuals who show a strong pseudoreaction to the Schick test and those who are positive to the intradermal injection of the diluted toxoid. The author regards as essential the routine employment of the Schick test two or three months after the completion of the immunization. Any program of diphtheria prevention must include and especially emphasize the necessity of immunizing the preschool child. In conclusion the author states that the use of diphtheria toxoid as an immunizing agent in the prophylaxis of diphtheria is highly recommendable, and, in children, is to be preferred to toxin-antitoxin.

Surgery, Gynecology and Obstetrics, Chicago

55: 1-128 (July) 1932

*Peptic Ulcers and Interbrain. H. Cushing, Boston.—p. 1.
Geographic Pathology of Goiter. C. A. Hellwig, Wichita, Kan.—p. 35.
New Method for Graphically Recording Contractions of Parturient Human Uterus: Study of Effect of Certain Sedatives, Anesthetics and Stimulants on Uterus in Labor. S. M. Dodek, Cleveland.—p. 45.
Hepatolienography with Thorotrast. R. Lewisohn, New York.—p. 68.
*Relation of Pyogenic Arthritis to Osteomyelitis. J. D. Bisgard, Chicago.—p. 74.
Shelf Operation in Treatment of Congenital Dislocation of Hip. F. D. Dickson, Kansas City, Mo.—p. 81.
Wire Extension Treatment of Fractures of Fingers and Metacarpal Bones. H. Meltzer, Frankfort-on-Main, Germany.—p. 87.
*Pancreatic Lithiasis. F. D. Ackman and A. Ross, Montreal, Canada.—p. 90.
Knotting of Umbilical Cord: Report of Two Cases and Illustrations of Mechanism of Knot Formation. W. G. Atwood, Fall River, Mass.—p. 96.
Electrohemostasis in Place of Ligatures: Presentation of Small, Simple Apparatus for Electrocoagulation. H. H. Young, Baltimore.—p. 100.
Relation of Diverticula of Bladder to Obstruction of Vesical Neck. W. Walters and S. W. Mulholland, Rochester, Minn.—p. 104.
Primary Malignant Neoplasms of Epididymis. C. A. Coleman, J. A. Mackie and W. M. Simpson, Dayton, Ohio.—p. 111.

Peptic Ulcers and Interbrain.—The attempt to find a reasonable explanation for the acute perforative lesions affecting the esophagus, stomach and duodenum, which in three instances caused early fatality after operations for cerebellar tumor, led Cushing not only to a review of the extensive literature on the neurogenic aspects of ulcer pathogenesis but also to certain experimental observations that strongly suggest the presence in the diencephalon of a parasympathetic center. From this center, apparently tuberal in situation, fiber tracts pass backward to relay with the cranial autonomic stations of midbrain and medulla, of which the vagal nucleus is by far the most important because of its influence on the activity of the lungs, heart and upper alimentary canal. Experimental lesions anywhere in the intracranial course of these fiber tracts from anterior hypothalamus to vagal center, presumably from parasympathetic stimulation (or possibly from vagal release due to sympathetic paralysis), are prone to cause gastric erosions, perforations or ulcers. Intracranial injuries and diseases affecting these basilar regions of the brain are known to be accompanied by ulcerative lesions of the upper alimentary canal. It is reasonable to believe, therefore, that the perforations following the cerebellar operations forming the basis of the author's study were produced in like fashion by an irritative disturbance either of fiber tracts or of vagal centers in the brain stem. The author points out that those favorably disposed toward the neurogenic conception of ulcer have in the course of time gradually shifted the burden of responsibility from the peripheral vagus to its center in the medulla, to the midbrain, and now to the interbrain, newly recognized as a highly important, long overlooked station for vegetative impulses easily affected by psychic influences. So it may easily be that high strung persons, who incline to the form of nervous instability classified as parasympathetic (vagotonic), through emotion or repressed emotion, incidental to continued worry and anxiety and heavy responsibility, combined with other factors such as irregular meals and excessive use of tobacco, are particularly prone to have chronic digestive disturbances with hyperacidity often leading to ulcer—effects wholly comparable to those acutely produced by irritative lesions experimentally made anywhere in the course of the parasympathetic system from the tuberal center to its vagal terminals. While this conception of the etiology of ulcer does not account for all ulcerative processes under all conditions, it offers a reasonable explanation of the majority of them and is in accord with the personal experience of most victims of chronic recurring ulcer. This, briefly, is as near as one can come, with the data at hand, to an interpretation of the neurogenic origin of peptic ulcer and an explanation of its existing prevalence.

Relation of Pyogenic Arthritis to Osteomyelitis.—Bisgard reports that of 217 cases of pyogenic osteomyelitis there was associated arthritis in 41 cases, an incidence of 23.5 per cent. Of these 51 cases, 42 (19.3 per cent) arose by direct extension from an adjacent diaphyseal infection. The large weight bearing joints constituted 92.5 per cent of this group. In 9 cases (4.1 per cent) the joints appeared to have become involved by blood-borne infections, presumably from remote foci of osteomyelitis. However, there may have existed at some time a small undiscovered lesion in the adjacent bone, and the joints may represent the end-result of an abortive osteomyelitis. The seriousness of this complication of osteomyelitis was measured in this analysis by the end-results of the joint damage alone. Only 13.2 per cent of joints infected by direct extension regained a good range of motion; 65.2 per cent became ankylosed, and the remaining 22.6 per cent suffered varying degrees of functional limitation. A comparison of these end-results with those resulting from hematogenous infection, in the small series analyzed, suggests that less joint damage is produced by the latter type. In this group ankylosis occurred in 44.5 per cent and a good range of motion was preserved in 33.3 per cent of the cases.

Pancreatic Lithiasis.—According to Ackman and Ross, pancreatic lithiasis, of which they report a typical case, has been reported only slightly over 100 times. Whereas most of the earlier cases reported were from necropsy observations, in the majority during the last fifty years successful operations have been performed. Epigastric pain of both dull and colic-like nature is the commonest symptom, but unfortunately there is no consistency in radiation. Steatorrhea and diarrhea attract particular attention in the symptomatology. These symptoms, together with the occasional finding of calculi in the feces, make the examination of the stools of great importance. Glycosuria of true diabetic character is a frequent observation late in the condition. It appears to be coincident with extensive destruction of the islets of Langerhans by the fibrotic pancreatitis that occurs with this condition. Jaundice occurs often enough to lead frequently to the incorrect diagnosis of cholelithiasis. Correct clinical diagnosis is difficult, and though the roentgen ray is of great value it may not be conclusive, while even at operation stones may be missed, particularly if single, A peculiar crepitus when multiple stones are present has been described Surgical treatment has yielded gratifying results from every standpoint. The mortality rate is less than 6 5 per cent. When properly treated, diabetes mellitus does not constitute a contraindication to operation. Characteristic pathologic changes occur in the parenchyma of the gland, beginning as a chronic interlobular pancreatitis and gradually involving the whole gland in a fibrotic process, with resultant atrophy and loss of parenchyma. The islets of Langerhans are last to be involved. The calculi are composed for the most part of calcium carbonate and calcium phosphate. These observations are suggestive of an inflammatory etiology Associated pulmonary tuberculosis has been noted in a number of cases The incidence of this is, however, probably not more than might be expected in diabetes mellitus generally.

Texas State Journal of Medicine, Fort Worth

28: *195 252 (July) 1932*

Rheumatic Fever and Rheumatoid Arthritis J W Gray, E Fendrick and C H Gowen, Newark, N J—p 203
Importance of Early Diagnosis and Treatment of Lesions of Oral Cavity. A. Soiland, Los Angeles—p 213
Antistreptococcus Cardioarthritidis Serum and Antigen (S C A) in Treatment of Chronic Rheumatic Endocarditis Preliminary Report M B Whitten, Dallas—p 217
Possible Significance of O and H Agglutinins, with Especial Reference to Widal and Weil Felix Reactions H A Kemp, Dallas—p 223
Common Intra-Ocular Tumors B F Payne, Houston—p 227
Industrial Ophthalmologic and Compensation Problem J G Jones, Dallas—p 231
The Physician and His Ethics J H Hunter, Houston—p 238

Virginia Medical Monthly, Richmond

59: *197 262 (July) 1932*

Preliminary Report of Method of Internal Fixation of Transcervical Fractures of Neck of Femur in the Aged H H Westcott, Roanoke—p 197
*Treatment of Depressed Fractures of Vault, and Prevention of Intracranial Infection in Certain Fractures of Base of Skull C C Coleman, Richmond—p 204
Radiotherapy in Nonmalignant Conditions C Moore, Washington, D C—p 207.
Difficulties in Diagnosis of Atypical Cases of Pulmonary Tuberculosis F B Stafford, Sanatorium—p 212
Health Work in Norfolk Public Schools W L Harris, Norfolk—p 229.
Unusual Case of Peritonitis W L Peple, Richmond—p 231
Cardinal Principles in Treatment of Asthma and Hay Fever W E Jennings, Danville—p 233
Some Thoughts on Appendicitis F J Kirby, Baltimore—p 236
Arthritis. J. S. Gaul, Charlotte, N C—p 238
Leptothrix Buccalis Infection T L Driscoll, Richmond—p 240

Treatment of Depressed Fractures of Vault.—Coleman points out that the prevention of epilepsy and headache following depressed fractures of the skull is more likely to succeed if, in addition to the elevation or removal of depressed fragments, such treatment of the injured brain is carried out as will limit the amount of cortical scar tissue The treatment of the local brain injury underlying the depressed fracture is of greater importance than the mere elevation of the depressed bone. Compound fractures of the vault require early operation to prevent infection of the brain and to minimize the late bad effects of the local injury The author believes that the principles of surgical treatment of compound fractures of the vault for prevention of infection should be extended to certain fractures of the base, in which there is a communication between the meningeal spaces and the sinuses, as shown by a continued cerebrospinal fluid leak or air remaining in the brain tissues and cerebrospinal fluid spaces.

West Virginia Medical Journal, Charleston

28: *289-336 (July) 1932*

President's Annual Address Medical Retrospect A H Hoge, Bluefield—p 289
Some Phases of Healing Process in Tuberculosis C H Cocke, Asheville, N. C—p 296
Reduction of Fractures with Local Anesthetics R H Walker, Charleston—p 302
Public Health, Its Meaning, History, Early Problems and Modern Accomplishments A J Kemper, Clarksburg—p 305
Local Use of Chloroform in Various Pain and Allied Conditions. C N. Brown, Swandale—p 309
The Physician Himself N R Price, Marlinton—p 311
Agranulocytosis Associated with Diabetes Case W. M. Sheppe, Wheeling—p 313.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below Single case reports and trials of new drugs are usually omitted

Archives of Disease in Childhood, London

7: 105-180 (June) 1932

Investigations on Causes of Vaccination Encephalitis. A. Eckstein—p 105
*Amyoplasia Congenita W. Sheldon—p 117
Osteopsathyrosis (Lobstein's Disease). Constance M. Ottley.—p 137
*Plasma Phosphatase in Rickets and Scurvy. Jean Smith and M Maizels—p 149
*Acute Otitis Media in Infancy N Asherson—p 159
Influence of Acidosis on Carbohydrate Metabolism Mary L Gilchrist—p 169.

Amyoplasia Congenita.—Sheldon points out that the name "multiple congenital articular rigidity" sums up the leading clinical characteristics of amyoplasia congenita, once seen the recognition of other cases should be easy. It is to be remembered that the position in which individual joints may be fixed may vary in different cases, as may the range of movement The only other disease with which it might be confused is spastic diplegia due to lesions of the nervous system, but in that condition the stiffness of the limbs can be slowly overcome by passive means and there is no actual fixity of the joints. Also the spasticity relaxes under anesthesia Cases presenting fixed extension of the elbows, pronation of the forearms, and flexion of the wrists, bear a resemblance to Erb's type of brachial palsy, but in the latter condition the arms are flail and there is no ankylosis of joints. The rigidity is greatest at birth; it may persist undiminished, but by constant efforts at passive movements carried out over months or years, some increase in the range of mobility may be obtained. Major orthopedic operations have been undertaken in some of the cases with apparently good results, particularly in the cases of fixed flexion of the knees

Plasma Phosphatase in Rickets and Scurvy.—According to Smith and Maizels, the chemical changes in rickets and scurvy are to some extent contrasting, as might be expected from the other pathologic changes in these conditions. In rickets there is excessive proliferation of cartilage cells, increased vascularity, and the formation of a wide zone of osteoid tissue The high phosphatase found in rickets is probably derived from these hypertrophic cartilage cells and osteoblasts which Robison has shown to be the source of the enzyme, and its presence in increased quantity supplies one of the factors essential for ossification. In scurvy, on the other hand, the picture is one of cessation of growth, and ossification is in abeyance The cartilage cells are disorganized and are fewer in number and smaller in size than normal. Hence, in the acute stage there is neither the source nor the need for the production of phosphatase. This holds good also in cases with subperiosteal hemorrhage before calcification begins. With the administration of antiscorbutic vitamin, growth begins again and calcification of any hemorrhage present proceeds; the cartilage cells become active and the plasma phosphatase rises, corresponding to a probable increase in the secretion of phosphatase in the bone. The observations in cases of fractures agree with these conclusions The author found the average normal plasma phosphatase in infants under 1 year to be 0 23 unit (range 0.10 to 0 27). In the second year the figures were slightly higher, averaging 0 24 unit (range 0.11 to 0 33), while the phosphatase content in older children up to 12 years of age averaged 0 17 unit (range 0 12 to 0.2). The plasma phosphatase is increased in active rickets, the degree of elevation corresponding to the severity of the disease. The average phosphatase in nine cases of uncomplicated rickets was 0.75 unit, with a range of 0 3 to 1.4. Whereas the blood calcium and phosphorus rapidly returned to normal with treatment, the decline in the phosphatase was much more gradual, and normal values were not regained until the healing process was complete The phosphatase was found to give low normal figures in the acute stage of scurvy whether subperiosteal hemorrhages were present or not. A rise of the phosphatase appeared coincident with the onset of calcification of the hemorrhages and this fell again with the absorption of these calcified areas. The plasma phosphatase was normal in cases of fracture immediately after the injury but rose at the same time as the callus appeared and fell to normal when the bone was completely healed.

Acute Otitis Media in Infancy.—Asherson states that in an infant the tympanic membrane may remain of apparently normal color and yet have pus behind it. A temperature of over 100 F. with an unruptured tympanic membrane, during an attack of acute otitis media, even though such a figure has been reached only once during the illness, indicates the presence of a suppurative lesion, demanding myringotomy without delay. Even if the patient is not seen until a late stage of the attack when only a mild degree of fever is present, the same conclusions should be drawn if there is a clear history of an earlier temperature of over 100 F. The presence of high fever in an infant, even in the new-born, should lead to a suspicion of acute otitis media calling for a careful examination of the ears. In cases of infantile gastro-enteritis the ears should be kept under the observation of the otologist. If myringotomy reveals pus, the antrum should be drained.

British Journal of Experimental Pathology, London

13: 189-298 (June) 1932

Hydrogen Ion Concentration of Fowl's Blood in Rous Sarcoma and in Infections (Avian Tuberculosis and Salmonellosis). M. J. A. des Ligneris.—p. 189.
Cortical Proliferation in Mouse Suprarenal After Peptone. R. Whitehead.—p. 200.
Production of Toxin by C. Diphtheriae: I. Energy Sources. C. G. Pope.—p. 207.
Id.: II. Effects Produced by Additions of Iron and Copper to Medium. C. G. Pope.—p. 218.
Intranuclear Bodies in Liver Cells of Mice. G. M. Findlay.—p. 223.
Transmission of Luping Ill to Monkeys. G. M. Finlay.—p. 230.
Studies on Protein-Free Suspensions of Viruses: IV. Antigenic Properties and Serologic Reactions of Protein-Free Suspensions of Phage. I. J. Kligler and L. Olitzki.—p. 237.
Antihemolysin Titers in Hemolytic Streptococcal Infections and Their Significance in Rheumatic Fever. E. W. Todd.—p. 248.
Nature of Vaccinia Flocculation Reaction and Observations on Elementary Bodies of Vaccinia. J. Craigie.—p. 259.
Mucus Secretion in Trachea. H. Florey, H. M. Carleton and A. Q. Wells.—p. 269.
Studies in Bacillus Pestis Antigens: I. Antigens and Immunity Reactions of Bacillus Pestis. H. Schütze.—p. 284.
Id.: II. Antigenic Relationship of Bacillus Pestis and Bacillus Pseudotuberculosis Rodentium. H. Schütze.—p. 289.
Id.: III. Prophylactic Value of Envelope and Somatic Antigens of Bacillus Pestis. H. Schütze.—p. 293.

British Medical Journal, London

1: 1063-1110 (June 11) 1932

*Alteration of Circulation of Brain by Surgical Means in Diseases of Central Nervous System. N. D. Royle.—p. 1063.
Liver and Spleen: Their Clinical and Pathologic Associations. J. W. McNee.—p. 1068.
*Recent Advances in Treatment of Fractures. R. W. Jones.—p. 1073.
Disruption of Pelvis. L. A. H. Snowball.—p. 1076.
Spontaneous Cure of Spina Bifida with Congenital Dislocation of Lumbar Spine. D. Kyle.—p. 1076.
Removal of an Ascaris from Common Bile Duct. J. B. G. Muir.—p. 1077.

Alteration of Circulation of Brain by Surgery in Diseases of Central Nervous System.—Royle says that it is a well known principle underlying the physiology of the central nervous system that hyperactivity accompanies slight degrees of asphyxia or anoxemia. The operation of this principle suggested itself to him when he had observed the results following a sympathetic thoracic trunk section on a patient with extensor spasm. He was demonstrating the ipsilateral effects showing how the ipsilateral forearm fell when released from the perpendicular position, when to his surprise the contralateral forearm fell much more rapidly. The operation of sympathetic thoracic trunk section profoundly alters the cerebral circulation, and the result he had observed was explained by the change in circulation in the opposite side of the brain. It then occurred to him that in paralysis agitans, spastic hemiplegia, and other conditions, he had been operating on the side of the manifestation of the lesion instead of on the side of the lesion in the brain. This reflection opened up a new aspect of the surgery of the sympathetic nervous system—that of changing the reflex activity of the central system by altering the blood supply of the brain rather than attempting to change its peripheral manifestations by cutting peripherally directed rami of the sympathetic nervous system. The author presents an account of the technic and results of sympathetic thoracic trunk section in various surgical operations and laboratory experiments.

Treatment of Fractures.—Jones predicts that in consequence of the advances made in the treatment of fractures the "massage" departments of hospitals will undergo a great transformation during the next few years. A patient with a fractured limb can be persuaded that it is safe to use it only if he is taught occupational activity under supervision. In the author's physical therapy department at the Liverpool Royal Infirmary the number of patients who are actually being massaged is reduced to a negligible minimum. But every patient goes into the department as soon as roentgenograms have shown that the fracture is perfectly reduced. The man whose Pott's fracture was reduced yesterday is today being taught to walk. The woman who sustained a Colles fracture yesterday is today learning to make beds and peel potatoes. As far as possible, individual occupational activity is maintained throughout the period of immobilization. The patient with the fractured spine, whose trunk is encased in plaster, is taught exercises for the erector spinae, which are far more effective than faradic stimulation, even if such were possible. Every patient whose knee joint is immobilized, whether he walks or not, is taught tonic exercises for the quadriceps, and if a patient is due for admission to a hospital for a knee operation he is first taught quadriceps drill until he is so expert in his exercise that he can practice it from the day of operation onward. In short, modern treatment anticipates the complications of muscle wasting, joint stiffness and mental fear, and instead of treatment being prescribed after these conditions have developed, steps are taken to prevent them from appearing.

1: 1111-1156 (June 18) 1932

Liver and Spleen: Their Clinical and Pathologic Associations. J. W. McNee.—p. 1111.
*Prognostic Value of Spinal Anesthesia in Vasospastic Diseases of Lower Limbs. E. D. Telford and J. S. B. Stopford.—p. 1116.
Artificial Pneumothorax, Adhesion Cutting and Oleothorax: Illustrative Case. F. G. Chandler.—p. 1118.
*Action of Ergot Preparations on Puerperal Uterus: Clinical Investigation, with Especial Reference to Active Constituent of Ergot as Yet Unidentified. C. Moir and H. H. Dale.—p. 1119.
Use of "Avertin" in Presence of Damaged Liver Function: Report of Three Illustrative Cases. H. K. Ashworth.—p. 1123.
Erysipelas Treated by Milk Injections: Four Cases. A. C. McEachern.—p. 1124.

Prognostic Value of Spinal Anesthesia in Vasospastic Diseases of Lower Limbs.—Telford and Stopford say that in any case of thrombo-angiitis obliterans there is the element of vasospasm, which can be relieved by cord sympathectomy, and there is the element of thrombosis, on which operation is useless. The propriety of operating can be decided only by an endeavor to estimate the relative amounts of spasm and thrombosis. The authors feel that this can best be done in the lower limbs by a spinal anesthetic. The method need involve no trouble for the patient, as the spinal injection is given on the operating table and the operation can be undertaken or abandoned on the observations given by the thermometer within five minutes of the injection. These advantages render this method much more attractive, safer, and quicker than those involving the intravenous injection of substances which commonly cause the patient discomfort for some time. Furthermore, the response to a spinal anesthetic gives an accurate record of what can be expected from sympathectomy, while the rise in surface temperature induced by fever only approximates roughly to that following excision of the sympathetic supply.

Action of Ergot Preparations on Puerperal Uterus.—According to Moir and Dale, the liquid extract, and the solid extract of ergot, of the 1914 British pharmacopeia, both show great activity in stimulating contractions in the puerperal uterus. Defatted ergot powder has a similar action. The keeping properties of the extracts appear to be good. Different samples of ergot vary in their activity. The effect of the drug comes on with remarkable suddenness and may appear within four minutes of oral administration of the liquid extract. There is an increased tone of the uterus to an extent much greater than that seen with other oxytocic drugs. In these and other respects the ergot extracts act in a far different manner from the purified alkaloids ergotoxine and ergotamine. Histamine and tyramine, given in reasonable dosage by the mouth, have no effect on the puerperal uterus. Histamine given by intramuscular injection has slight effect on the uterus but may produce undesirable symptoms. There is reason to believe that the characteristic and traditional effect of ergot is due to a substance as yet unidentified.

East African Medical Journal, Nairobi

9: 1-28 (April) 1932

*Note on Laboratory Diagnosis of Plague Infections. F. P. G. de Smidt.—p. 2.
Use of Calcium in Heart Disease. E. Podolsky.—p. 14.
List of Muscidae and Oestridae Causing Myiasis in Man and Animals in Kenya, Recorded at Medical Research Laboratory, Nairobi. C. B. Symes and J. I. Roberts.—p. 18.

9: 29-57 (May) 1932

Preliminary Note on Cell Content of Prefrontal Cortex of East African Native. F. W. Vint.—p. 30.

Laboratory Diagnosis of Plague Infections.—De Smidt points out that, in the human subject during life, laboratory diagnosis of plague infections depends on either microscopic or cultural examination, or both together, of the following materials: (1) lymph node substance obtained by needling of a bubo; (2) blood withdrawn from a vein for culture, or merely a drop of blood for a slide, and (3) sputum. Examination of lymph node substance is of course restricted to bubonic cases or those in which enlarged lymph nodes can be found. Blood culture is not very likely to yield growth of bacilli except in the markedly septicemic type of case, and then the positive result may be obtained only perhaps two or three days after the patient's death. Microscopic examination of an ordinary blood slide may give a rapid diagnosis but again is likely to be positive only in a severe septicemic case. Microscopic examination of sputum may afford a quick and certain diagnosis in a septicemic case with bronchopneumonic involvement of lung in which differentiation is to be made from common pneumonia. The author describes in detail these various forms of laboratory diagnosis.

Indian Medical Gazette, Calcutta

67: 301-360 (June) 1932

Study of Monkey-Malaria: Its Experimental Transmission to Man: Preliminary Report. R. Knowles and B. M. das Gupta.—p. 301.
Preliminary Note on Antirachitic Value of Sun-Irradiated Yeast. D. C. Wilson.—p. 320.
Musk: Its Pharmacologic Action and Therapeutic Uses. R. N. Chopra and B. Mukherjee.—p. 321.
Observations on Composition of Butter Imported into Burma. E. H. Bunce.—p. 326.
Contribution to Surgery of Fascial Transplantation: Illustrative Cases. P. C. Dutta.—p. 326.

Journal of Physiology, London

75: 113-271 (June 21) 1932

*Physiologic Leukocytosis: Variation in Leukocyte Count During Rest and Exercise, and After Hypodermic Injection of Adrenalin. H. E. Martin.—p. 113.
Normal Respiration and Influence of Vagi. E. Sharpey-Schafer.—p. 130.
Creatine and Phosphorus Compounds in Malignant Tumors. E. Boyland.—p. 136.
*Vasodilator Fibers in Sympathetic, and Effect of Circulating Adrenalin in Augmenting Vascular Response to Sympathetic Stimulation. J. H. Burn.—p. 144.
Identification of Gamma Excitability in Muscle. W. A. H. Rushton.—p. 161.
Effect of Injection of Blood on Urea in Blood and Urine. E. S. Ivanitzky-Vassilenko.—p. 190.
Lactic Acid Metabolism of Frog's Muscle Poisoned with Iodoacetic Acid: I. Lactic Acid Metabolism of Anerobic Iodoacetate Muscle: II. Lactic Acid Metabolism of Aerobic Iodoacetate Muscle. C. A. Mawson.—p. 201.
Reversal of Gastric Vagus. G. L. Brown and R. C. Garry.—p. 213.
Chloride and Vapor-Pressure Relations in Secretory Activity of Gills of Eel. J. B. Bateman and A. Keys.—p. 226.
Portal Circulation: I. Action of Adrenalin and Pituitary Pressor Extract. J. McMichael.—p. 241.
Influence of Shortening on Heat Production of Frog's Gastrocnemius. M. Cattell.—p. 264.

Physiologic Leukocytosis.—Martin examined the diurnal variation of the leukocyte count during rest and found that the counts are steadiest and at a minimum when the patient's condition approximates most nearly that of absolute physiologic rest; that they rise with increase in the mental and physical activity of the subject, and that they tend to rise in the late afternoon and early evening, this being regarded as the period of greatest activity. The effect of exercise on the peripheral blood was investigated. The total leukocyte count exhibited a rise varying from 15 to 48 per cent of the resting value, and it returned to normal after about thirty minutes' rest. Further exercise then produced another rise in the count similar in type and degree to the first. The rise in the total count was due to an increase in the number of all types of cell, but the lymphocytes showed the greatest increase. The hypodermic injection of epinephrine is followed by a leukocytosis in which all types of cell show an increase, but that of the lymphocytes is most marked. It is similar to the leukocytosis following exercise, and the author advances the theory that the latter is produced by autogenously secreted epinephrine. The cells that cause the leukocytosis arise from two sources. The lymphocytes are in all probability derived from the lymph nodes which contract under the influence of the epinephrine, and the granular cells are washed out of the bone marrow by the increased blood flow due to cardiac stimulation by the epinephrine.

Sympathetic Vasodilators and Epinephrine.—Burn describes experiments in which he demonstrated the existence of vasodilator fibers in the lumbar sympathetic chain of the dog. He also demonstrated that both the magnitude of the vasodilator response and the magnitude of the vasoconstrictor response to sympathetic stimulation are dependent on the amount of epinephrine in the circulating blood.

Journal of State Medicine, London

40: 373-434 (July) 1932

Modern Legislative Tendencies in Public Health. L. L. Macassey.—p. 399.
Progress of Industrial Hygiene in Northern Ireland. T. Somerset.—p. 406.
Improvement of Workers' Health Through Industrial Management. Melchett.—p. 409.
Maternity and Child Welfare. Craigavon.—p. 415.

Journal of Tropical Medicine and Hygiene, London

35: 177-192 (June 15) 1932

Diseases of Australian Aborigines. H. Basedow.—p. 177.
Present Problem of Malaria in Natal. F. G. Cawston.—p. 185.
Sodoku (Rat-Bite Disease) and Its Incidence in Brazil: Brief Report of New Case. H. P. Fróes.—p. 185.

35: 193-208 (July 1) 1932

Diseases of Australian Aborigines. H. Basedow.—p. 193.
Investigations on Malaria and Its Transmission in Amoy, Fukien Province, South China. Lan-Chou Feng.—p. 198.

Lancet, London

1: 1345-1394 (June 25) 1932

*Reactions of Eye to General Disease. F. A. Williamson-Noble.—p. 1345.
*Asbestosis Body. S. R. Gloyne.—p. 1351.
Results of So-Called Tonsils and Adenoids Operation. J. K. Love.—p. 1356.
Reduction of Fractures Under Local Anesthesia. E. L. Bartleman and G. O. Tippett.—p. 1357.

Reactions of Eye to General Disease.—Williamson-Noble points out that the changes in the eye associated with high blood pressure are of great clinical importance. The retina is morphologically a portion of the brain and, from the clinical standpoint, it is the condition of the cerebral circulation which most closely concerns one in cases of vascular disease. In the second place, the eye is the only portion of the body where the cerebral vessels are, so to speak, open to inspection; and the dioptric arrangements are such as not only to render the vessels visible but actually to magnify them 14 diameters. It is not surprising, therefore, that the ophthalmologist, by his routine examination of the fundus, is often the first person to discover the presence of vascular disease. The retinal circulation is a little unusual in that the larger vessels, although morphologically arteries, resemble arterioles in the thinness of their walls and the paucity of their muscular layer. The first and most important change, to the author's mind, is localized variation in caliber. The condition is not by any means conspicuous and, unless carefully sought, may be overlooked. The author has seen definite nipping of the superior temporal vein by the artery in perfectly healthy children, and he has seen no nipping at all in cases in which the systolic blood pressure was over 200 mm. of mercury. There was, however, a telltale diminution in caliber of the inferior nasal and the superior temporal arteries. In addition to the localized variations in caliber of the retinal arteries there is often a generalized attenuation. The vessels so affected are often straight, instead of being curved, as in the normal eye, and usually give off their branches at an acute angle. These attenuated vessels are often found to have walls that are thinned rather than thickened. Nipping of the vein alone is not sufficient ground for the diagnosis of retinal arteriosclerosis and, since the sclerosis is essentially patchy and may not affect the portion of artery crossing the vein, its absence is also of no great significance.

Asbestosis Body.—Gloyne states that from the presence of the asbestosis body in the sputum the following deductions can be made: 1. Since these typical bodies have not been found in any other disease, their presence is an indication of exposure to asbestos' dust. 2. The fact that the bodies have not been found in asbestos dust implies that their formation is the result of some tissue reaction in the body—probably a colloidal reaction in which the iron plays a part. 3. The presence of asbestosis bodies in the sputum means that asbestos fibers have been present in the lung for many weeks at least. 4. The presence of the asbestosis body implies a tissue reaction to the fiber, but it does not necessarily follow that this reaction is accompanied by fibrosis. On one occasion the author found fine connective tissue fibers in sections of a guinea-pig as early as twelve days after subcutaneous inoculation of asbestos fibers, but the amount was minute. A heavy dose of fibers would be needed—and even then years might elapse—before the fibrosis was sufficient to be detected by physical signs or roentgen examination or to produce dyspnea. It would be unsafe, therefore, to accept the presence of the asbestosis body as undeniable evidence of fibrosis; all one can say at present is that the asbestosis body is an expression of tissue reaction of the nature of a benign irritant, and that fibrosis of an appreciable extent may or may not be a part of that tissue reaction.

Medical Journal of Australia, Sydney

1: *755-784 (May 28) 1932*

E. H. Embley Memorial Lecture. W. A. Osborne.—p. 755.
Two Groups of Atypical Dysentery Bacilli. Margot McKie and F. M. Burnet.—p. 760.
*Significance of "Slow Dulcite Fermenters" in Summer Diarrhea. W. T. Nelson.—p. 763.
Radium Implantation in Treatment of Capillary and Cavernous Nevi. C. C. Anderson.—p. 768.
Importance of Drainage in Renal Disease. R. K. L. Brown.—p. 769.
After-Results of Ethmoid Operation. H. G. Mitchell.—p. 772.

1: 785-814 (June 4) 1932

Anterior Poliomyelitis, with Especial Reference to Patients Passed Through the Royal Alexandra Hospital for Children in Recent Epidemics. J. Steigrad.—p. 785.
Principles of After-Care in Infantile Paralysis. E. B. M. Vance.—p. 789.
Prevention of Deformities in Treatment of Poliomyelitis. C. H. Hembrow.—p. 792.
Note on Significance of Dosage in Irradiation of Interrelated Tissues. W. H. Love.—p. 796.
Method of Drainage with Irrigation After Prostatectomy. J. Morton.—p. 798.
Scope and Utility of Gas-Oxygen Anesthesia. H. J. Daly.—p. 799.

"Slow Dulcite Fermenters" in Summer Diarrhea.—Nelson reports that the examination of large numbers of children in Melbourne suffering from diarrheal disease during the summer months has revealed a type of dysentery bacilli characterized by the slow fermentation of dulcite in peptone water sugar fermentation tubes. This strain has been found repeatedly since 1928 in the stools of children suffering from diarrheal diseases. During the summer of 1930 to 1931, it was isolated from the stools of 9 per cent of 122 patients with diarrheal disease examined in Melbourne. This strain resembled Bacillus flexneri in many ways but differed from it in (1) the appearance of the colonies on agar plates, (2) fermentation of dulcite, (3) no formation of indole, and (4) serologic reactions (agglutination and absorption of agglutinins). The type of illness affecting the children in whom it was found was a milder form of dysentery than that caused by Bacillus flexneri, for there were no deaths; while of the patients suffering from dysentery due to Bacillus flexneri, 16.6 per cent died. Pathogenicity for human beings tends to be confirmed by the development of agglutinins in patients' serums and by the absence of the well recognized types of dysentery bacilli from the stools. Some evidence of pathogenicity for laboratory test animals is given.

Practitioner, London

129: 1-208 (July) 1932

*Observations on Gastric and Duodenal Ulcers. Moynihan.—p. 4.
*Infections of Hands and Fingers. J. Fraser.—p. 18.
Treatment of Pleurisy. R. A. Young.—p. 33.
*Seasonal Hay Fever. F. A. Knott, C. Gill-Carey and A. F. Hurst.—p. 45.
*Indigestion. S. W. Patterson.—p. 57.
Constipation and Mechanical Laxatives. F. B. Parsons.—p. 70.
Diagnosis and Treatment of Some Common Intestinal Protozoal Infections. J. G. Thomson.—p. 84.
Lumbago and Allied Conditions. J. B. Mennell.—p. 95.
*Some Minor Ailments of Feet. H. Dodd.—p. 107.
Insomnia. A. Feiling.—p. 120.
Minor Mental Disorders. W. R. Brain.—p. 130.
Hypertension. B. Parsons-Smith.—p. 140.
Significance of Albuminuria and Treatment. G. Evans.—p. 152.
Cystitis. A. E. Roche.—p. 161.
Modern Treatment of Varicose Veins. R. H. Maingot.—p. 174.
Modern Treatment of Burns and Scalds. W. C. Wilson.—p. 183.

Observations on Gastric and Duodenal Ulcers.—Moynihan calls attention to the fact that it is far too often the custom to speak of gastric and duodenal ulcer as one and indivisible in causation, symptomatology and treatment. This is a grave mistake. The two diseases occur in different types of individual. The chemical constituents of the gastric juice are as a rule quite dissimilar; a close analysis of the clinical symptoms reveals subtle, but often quite clearly recognizable, distinctions; perforation and hemorrhage do not occur with equal relative frequency; carcinoma is not an uncommon terminal result in gastric ulcer—it occurs in less than one in a thousand cases of duodenal ulcer. The pylorus forms a sharp line of division between the two and is rarely transgressed by a duodenal ulcer, almost never by a gastric ulcer. The author believes that it is important to distinguish between acute and chronic gastric ulcers. Acute ulcers are commonly if not invariably associated with toxemia; an infection in the mouth, on the skin, in the appendix or elsewhere may be the primary cause of those minute shallow erosions of the stomach or duodenum which cause dyspepsia, hemorrhage or perforation. Hemorrhage and perforation, though themselves acute, are with few exceptions the evidence not of acute but of chronic ulceration which has assumed fresh activity. In a series of gastric ulcers observed over a period of twelve years it was found that in sixty-one cases in which death occurred from perforation, the ulcer was of the chronic type in sixty; in fourteen cases in which death occurred from hemorrhage, the ulcer was of the chronic type in thirteen. In the acute case the ulcer was a terminal condition associated with advanced disease, and hemorrhage was not the determining cause of death. In a similar series of cases of duodenal ulcer during the same period, this truth also held good; twelve deaths from hemorrhage all occurred in cases of chronic ulcer; in 117 deaths from perforation there were 109 cases in which the chronic ulcer had given way; in twelve cases acute ulcer was present; so that there were four cases in which both acute and chronic ulcers were found; in every one it was the chronic ulcer that had perforated.

Infections of Hands and Fingers.—Fraser summarizes the principles of treatment of nail infections as follows: Unless pus formation exists, it is a mistake to incise the parts; no real benefit is achieved, but on the contrary tissue spaces are opened up which may lead to an extension of infection. In the early stages, therefore, he contents himself with such conservative measures as the application of a narrow congestive bandage around the finger base, and the application of heat to the part through the medium of hot finger baths or hot fomentations, the former for preference. It may be that by these means the formation of pus is avoided. As soon as suppuration has occurred, it should be released by an appropriate incision. The part should be incised in such a way as to secure a sufficiency of drainage and yet preserve the future function of the tissue. In practice the detail is as follows: Suppuration at the eponychium is incised by a flap incision so designed that the integument overlying the nail root is uplifted so as to permit the introduction of a narrow rubber tissue drain. Pus formed at the nail edge is released by an incision parallel to the long axis of the nail but so placed as not to damage the protective cornified ridge. If suppuration is extending beneath the nail into the nail bed it is rarely necessary to remove the nail plate. Pus formed in this situation extends slowly because of the physical resistance offered by the tissues, and if the progress of events is carefully observed a local release of pus is secured while the suppuration is still confined to a small area. To remove the entire nail plate while the pus formation is limited is a harmful and barbarous procedure, for not only is it unnecessary but it exposes fresh tissue to infection and may result in permanent disfigurement of the finger tip. In such cases the author removes by means of small, strong, sharp-pointed scissors that portion of the nail plate which overlies the pus collection. The after-treatment of nail infection implies the continuance of hot antiseptic finger baths, of hot fomentations in the intervals of bathing, and of congestion. As soon as the infection has subsided a mild astringent antiseptic, such as acriflavine hydrochloride 1 : 1,000, is an appropriate dressing.

Seasonal Hay Fever.—According to Knott and his associates, rhinologic opinion is sharply divided on the question of the importance of the nasal factor in the group of diseases represented by hay fever, asthma, and chronic vasomotor rhinitis. An increasing body of opinion favors the view that sinusitis, when present in these conditions, is purely a secondary effect of the hypersensitiveness and repeated attacks of edema, and bears no causal relationship to it. Others regard pathologic conditions of the mucous membrane and sinuses as important predisposing factors to the development of hypersensitiveness. Certainly it is obvious that a nose already obstructed by a badly deflected septum or by the congestion of chronic infection will withstand the edema of hay fever with more difficulty than a normal nose, and that a chronic irritation from infection may increase the local reaction and prevent successful desensitization.

Indigestion.—Patterson states that indigestion may follow faulty habits, organic disease of the digestive tract or functional derangements of its secretory or motor mechanisms. Perhaps the commonest cause in everyday life of discomfort after meals is the bad habit of hurrying over meals, chewing the food incompletely or swallowing large boluses. Gulps of air are swallowed with hurriedly taken food and drink, and give rise to distention and flatulence. The practice of taking solid food and fluids separately is a simple but often successful means of prevention. The teeth should be examined, and those found to be painful or infected removed and adequate dentures supplied. Pus swallowed from infected teeth and gums, tonsils and accessory nasal sinuses will readily set up an atonic gastritis leading to indigestion. Alcoholic gastritis may be diagnosed readily when kept in mind. A common cause of indigestion nowadays is the recourse to acetylsalicylic acid and other coal-tar drugs for headaches, muscular pains and fatigue.

Minor Ailments of Feet.—Dodd concludes his review of minor ailments of the feet by mentioning the condition of pied forcé, which manifests itself by chronic discomfort and later moderate swelling over the shaft of the second or third metatarsal. Clinically and roentgenologically it may strongly suggest a fracture with a very mild reaction. After overuse of feet unaccustomed to strain, as in army recruits and enthusiastic hikers, a fracture of the shaft occurs quietly, without particular incident or pain. Early during the war, a battalion in France had two hundred men "confined to barracks" by "hysterical flat feet." A surgeon who saw some of them advised roentgen examination, and ultimately numerous cases of pied forcé were revealed, caused by long route marches with full packs during intensive training. Treatment consists in supporting the feet adequately in a stout plaster or boot until roentgen examination shows sound bony union. This condition may account for a few of the cases of obstinate pain in the feet, which are cropping up at present as the result of "overhiking."

South African Medical Assn. Journal, Cape Town

6: 359-386 (June 11) 1932

Record of Five Hundred and Sixty-One Consecutive Autopsies on Native Mine Workers. W. O. Fischer.—p. 359.
Hoarseness. H. Lewis.—p. 362.
Treatment of Dementia Paralytica with Protein Shock, Tryparsamide and Spirobismol. B. J. F. Laubscher.—p. 366.
Diagnostic Value of Radiologically Filled Appendixes. H. D. M. Ackermann.—p. 374.

Archives des Maladies de l'Appareil Digestif, Paris

22: 601-712 (June) 1932

*Supramesocolic Deformities of Duodenum in Form of "M." J. Quénu *and C. Jacquelin.—p. 601.*
Physiologic Studies of Stomach Following Ligation of Principal Arteries. E. Brenckmann.—p. 625.
Acid-Base Equilibrium of Urine. Chatron.—p. 637.

Deformities of Duodenum.—Quénu and Jacquelin designate as M shaped duodenum that deformity of the mobile duodenum which has been variously described as redundant duodenum, curved duodenum, angulated duodenum and so on, and which seems to result from the lengthening and sagging of the second portion of the duodenum in its supramesocolic segment. They report seven cases which illustrate different stages in the evolution of the deformity ranging from a simple duodenal inflexion forming an M, without localized dilatation or stasis in the joint of the inflexion, to the stage in which dilatation is at a maximum and the two median downstrokes of the letter form a large basin which empties into the remainder of the duodenum only by regorgement. In most of the cases there existed together with the deformity and disorders of the supramesocolic transit a dilatation immediately above the mesenteric crossing and a certain degree of stasis at this level with exaggerated antiperistalsis. A lengthening of the stomach with ptosis of the lower portion was also found in most of the cases. Discussing clinical manifestations, the authors remark the early appearance of digestive disturbances in adolescence or even childhood, which speaks in favor of the congenital nature of this deformity. The dyspeptic disorders, however, almost never present an acute character as in duodenal stenosis of rapid formation. They call attention to the difficulty experienced by the surgeon in finding exactly the deformity indicated by roentgenography. Medical treatment, such as employed in incomplete stenosis, usually suffices for the cure of M shaped duodenum. Surgical intervention is indicated clinically by aggravation of pain, frequent vomiting, paroxysmal crises, and decline of the general condition, and roentgenologically by the degree of sinking and dilatation of the duodenum and above all by the severity of the duodenal and retrograde gastric stasis. The intervention consists in suppression of the duodenal stasis by transmesocolic duodenojejunostomy. If the duodenal stasis is accompanied by gastric stasis, gastrojejunostomy must also be undertaken. The latter should be performed first and at a higher point on the jejunum than the duodenojejunostomy.

Schweizerische medizinische Wochenschrift, Basel

62: 617-636 (July 2) 1932

*Pseudodementia Paralytica Following Carbon Monoxide Poisoning. A. Meyer —p. 617.
*Cutaneous Symptoms in Sodium Chloride Retention. F. Jäggi.—p. 618.
Elimination and Iodometric Determination of Citric Acid in Urine. H. Süllmann and E. Schaerer.—p. 619.
Double Hearing in Epidemic Encephalitis. J. S. Galant.—p. 621.
Objective Electrical Demonstration of Existence of Emanation from Living Human Body and Its Visible Actions. E. K. Müller.—p. 622.

Pseudodementia Paralytica Following Carbon Monoxide Poisoning.—Meyer reports the history of a woman in whom three weeks after acute poisoning with carbon monoxide there developed, following an initial agitation, a condition resembling a syphilitic dementia paralytica, which took an acute course and ended fatally within four weeks. The pathogenesis of the dementia paralytica-like course of carbon monoxide intoxications has not been explained as yet. It has been assumed that the primary cause of the process is a nutritional disturbance, but why some cases end in recovery and others show progressive exacerbation even after they first manifest a tendency to a favorable outcome is still unexplained. The theory that the primary nutritional disturbance leads to chemical changes with varying toxic effects only describes the lack of knowledge. However, the author calls attention to investigations which revealed that the primary process in carbon monoxide poisoning is a paralysis and dilatation of the vessels. This leads to stasis of the blood that is impaired by the absorption of carbon monoxide. Secondarily there develops a disintegration of nervous elements, as could be ascertained in cases with slow lethal course. Most susceptible seem to be the cells of the *pallidum*; then follow the layers of the cerebral cortex and the cerebellar cortex. The scars in late cases resemble perivascular foci of obliteration and gliosis as found in arteriosclerosis. This seems to indicate that perhaps existing arteriosclerotic or syphilitic vascular changes predispose to a severe course of carbon monoxide poisoning.

Cutaneous Symptoms in Sodium Chloride Retention.—Jäggi relates that he observed several patients with acute or with progressive cutaneous symptoms such as urticaria, eczema and prurigo, in whom serologic examination revealed a retention of sodium chloride or of chloride, but the protein content and the urea content were not increased. The main reason why these patients asked medical advice was intense and sometimes unbearable itching which was especially severe toward evening. The sodium chloride retention was accompanied by water retention, and especially noteworthy was the complete failure of the perspiratory function. The blood pressure was normal in all patients, and the composition of the urine was likewise normal. A diet deficient in sodium chloride and mostly lactovegetarian effected a rapid disappearance of the manifestations. That the intake of protein does not have an injurious effect was demonstrated in an experiment. Since the dietary treatment is simple and gives rapid results, other measures are not necessary; but the author thinks that diuretics may accelerate the therapeutic effect.

Morgagni, Naples

74: 857-888 (July 3) 1932

*Morphologic Aspects of Endocrine Organs Under Influence of Sudden Hyperglycemia. M. Mattioli.—p. 859.
Practical Utility of Complemental Operations of Hysterectomy in Cancer. F. Lobello.—p. 867.

Morphology of Endocrine Organs Under Influence of Hyperglycemia. — Mattioli reports his observations after injecting dextrose and epinephrine into dogs. Histologic examination reveals an increase in the number and size of the islands of Langerhans in the pancreas, a great prevalence of acidophilic cells in the anterior lobe of the hypophysis and extreme hyperplasia in the cortical portion of the suprarenal and in the parathyroid. There are few or no histologic modifications in the medulla of the suprarenal and in the thyroid. Except for a mild hyperplasia in the endocrine part of the pancreas, the modifications do not occur when insulin is administered in addition to the dextrose. This all the more confirms the concept of the great importance of the islands of Langerhans in glycoregulation. The author concludes that the endocrine tissue of the pancreas is the principal factor in the mechanism of glycoregulation; the participation of other endocrine organs should always be considered as secondary in relation to the endocrine portion of the pancreas.

Prensa Médica Argentina, Buenos Aires

19: 117-180 (June 20) 1932

Roentgen Examination of Pleural Cavity After Injection of Iodized Oils. A. A. Raimondi and M. Albertal.—p. 117.
*Ascending Neuritis Cured by Sympathectomy J. Diez.—p. 123.
Action of Sodium Chloride and Magnesium Sulphate on Experimental Polyuria. A. Bergman.—p. 132.
Cardiovascular System in Relation to Endocrinology. P. M. Barlaro. —p. 143.
Normal and Pathologic Anatomy of Neck of Bladder. A. Trabucco.—p. 147.
New Model of Atraumatic Needle for Inserting Catgut Sutures. C. Castaldo.—p. 171.

Ascending Neuritis Treated by Sympathectomy.—Diez states that ascending neuritis is cured immediately and permanently by sympathectomy. He reports a case of typical ascending neuritis of the left arm, of twelve years' duration. The patient obtained immediate relief and permanent recovery by the resection of the stellate and middle cervical ganglions, with resection also of the ramus internodialis corresponding to these ganglions. The patient regained her working capacity almost entirely. When she was observed a year and a half after the operation had been performed, the satisfactory results still persisted. The author's case is the fifth reported in the literature in which ascending neuritis has been cured by an operation on the sympathetic nervous system. The author discusses the etiopathogenesis and physiopathology of the disease. The symptomatology and evolution of ascending neuritis are well known. Although there are not, up to the present time, precise data on the etiopathogenesis of the disease, the theory of a chronic and attenuated infection, progressing centrad to greater nerve trunks, through the neurilemma, proves to be correct. The theory that ascending neuritis is a sympathetic neuritis is based on the assumption of a peripheral sensory action of the sympathetic nervous system, which action is not proved. If the sympathetic nervous system had a direct action on the peripheral sensibility, the cutaneous hyperesthesia which follows ganglionectomy would affect the entire member corresponding to the suppressed sympathetic fibers, which is not the case. The sympathetic fibers, because of their relation with the spinal nerve fibers, are in some form involved in the production of the painful syndrome of ascending neuritis, in the determination of which, however, they do not have any part. The painful syndrome is a reaction of the spinal nerve fibers against the injury of their roots by a schwannoma formed at the distal end of the resected rami communicantes. The cutaneous hyperesthesia is entirely radicular. Since the cutaneous hyperesthesia is not of a peripheral but of a radicular origin, it is only logical to assert that the spinal roots also determine the pain provoked by the mechanical stimulation of the ganglions of the sympathetic nervous system. In other words, the peripheral pain caused by the stimulation of the ganglions of the sympathetic chain is the typical reproduction of the phenomenon of cutaneous irradiations of visceral pain described by Head and Mackenzie. The term sympathetic neuritis is improperly used, since it has been proved that ascending neuritis is a neuritis of the spinal system. The resection of the stellate ganglion cured the ascending neuritis by an indirect mechanism, by the production of vasodilatation, which (by increasing the circulation in the affected member) has a favorable action on the inflammatory condition of the neurilemma, since increased circulation has in general a favorable action on inflammatory conditions. The author says that, in order to make the indications for operation on the sympathetic nervous system more precise, it is advisable to obtain a thorough knowledge of the normal physiology of the sympathetic nervous system as well as of the physiopathologic changes caused by sympathectomy.

Archiv für Dermatologie und Syphilis, Berlin

165: 495-816 (July 2) 1932

Spodogram of Oral Mucous Membrane. F. Herrmann and E. Eicken. —p. 495.
Chemical Studies on Human Skin. A. Nadel.—p. 507.
Water Test in Various Forms of Eczema and of Dermatitis. A. Perutz and A. E. Klein.—p. 525.
Colloid Osmotic Pressure in Various Forms of Eczema and of Dermatitis. A. Perutz and A. E. Klein.—p. 532.
*Persistent Complement Fixation and Cure of Gonorrhea. H. Fröhlich and P. Jordan.—p. 542.
Epidermophytosis of Nails Caused by Kaufmann-Wolf Fungus. A. Matras.—p. 552.
Tumor-Like Proliferations of Gingiva. A. Matras.—p. 565.
Idiopathic Multiple Sarcoma (Kaposi). H. Mierzecki.—p. 577.
*Symptomless Syphilis Infection of White Mice. C. L. Karrenberg.—p. 585.
Predisposition in Psoriasis. Bettmann.—p. 694.
Etiology of Pseudoxanthoma Elasticum (Darier). E. Joffe and M. Joffe. —p. 713.
Immune Reactions in Oidiomycosis of Skin in Human Beings and in Animal Experiments. H. Biberstein and S. Epstein.—p. 716.
Involvement of Rectum in Gonorrhea in Women. O. Dahmen.—p. 743.
Aspects of Erythema Annulare Centrifugum (Darier). S. Neumark. —p. 748.
Classification of Metaplasias with Especial Consideration of Epithelial Desmoplasia. J. Follmann.—p. 772.
Biology of Gonococcus. A. Cohn.—p. 790.
Fibrosarcoma of Skin. W. Bruck.—p. 797.
Aspects of Prurigo Nodularis (Hyde) and Its Relation to Keratosis Verrucosa (Weidenfeld). R. M. Bohnstedt.—p. 808.

Persistent Complement Fixation and Cure of Gonorrhea.—Fröhlich and Jordan report studies which show that a positive complement fixation reaction frequently persists for several years and that therefore it does not necessarily prove the existence of a latent focus of gonorrhea. The practical conclusion they arrive at is that gonorrhea can be declared cured only on the basis of a bacteriologic examination. If several bacteriologic tests of the various secretions have given negative results, a positive seroreaction may be disregarded. However, if there is some doubt about the exactness of the bacteriologic tests, a positive seroreaction facilitates the recognition of cases not yet completely cured. In these cases a gonorrheal prostatitis frequently exists, but the authors think that gonorrheal foci of a different localization are rarely detected by the complement fixation reaction. They consider it advisable to subject every gonorrhea patient who has had a prostatitis to a complement fixation test six months and twelve months after completion of the treatment; if complement fixation persists, the secretions of the adnexa should be bacteriologically examined.

Symptomless Syphilis in White Mice.—Karrenberg's extensive report presents clinical, histologic, biologic and serodiagnostic data which he obtained in studies on approximately 700 animals. In summing up his observations he states that syphilitic infection in white mice is symptomless, at least as far as it can be ascertained by macroscopic observation. Even infection with large doses does not produce manifestations of disease. However, a symptomless infection of mice is possible by various methods; the only requirements are a certain minimum dose of virus and a sufficiently long contact between the virus and the organism. A connection between the quantity of the virus and the rapidity of infection is not demonstrable. In regard to the detection of the symptomless infection, it is stated that the serodiagnostic methods are practically valueless. At the site of infection the pathogenic organisms are demonstrable for various lengths of time. By means of staining they are longer demonstrable than in the dark field. Outside of the implant it is never possible to demonstrate spirochetes either by means of staining or by the dark field method. The lymph nodes of mice show in syphilitic infection about the same changes that are found in rabbit and in human syphilis. As indicated in biologic experiments, they become involved quite early and remain a virus reservoir. Histologic examination of the lymph nodes reveals no signs indicative of a syphilitic infection; however, in many instances a nonsyphilitic intumescence of the lymphatic apparatus is observable. The spleen and liver likewise become involved quite early and remain infectious for considerable periods, but histopathologic changes are absent. Although, in syphilis of rabbits, Spirochaeta pallida does not enter the brain, this does take place in mice. Moreover, the spirochetes that enter the brain of mice may become neurotropic in that, when they are reinoculated into rabbits, they have a tendency to enter the brain of rabbits. Macroscopic and microscopic examinations of lungs and kidneys reveal no involvement of these organs.

Archiv für klinische Chirurgie, Berlin

171: 1-216 (June *22*) 1932

Basis and Progress of Secretion Urography. A. von Lichtenberg.—p. 3.
Origin and Development of Chromocystoscopy. E. Joseph.—p. 29.
*Bronze Phlegmon (Gas Phlegmon) After Renal Operation. A. W. Meyer.—p. 39.
*Relation of Renal Capsules to Each Other and to Parenchyma. O. Orth.—p. 45.
Hemorrhagic Cysts of Suprarenal. G. Brandt.—p. 57.
Polyuria and Renal Insufficiency in Chronic Retention of Urine Due to Prostatic Hypertrophy. O. Hennig.—p. 66.
Posttraumatic Renal Calculi. J. Volkmann.—p. 86.
Renal Function in Acute Complete Occlusion of Ureter. H. Boeminghaus.—p. 109.
*Continuous Renal Drainage in Postoperative Treatment of Infected Calculous Kidney. R. Mutschler.—p. 116.
Papillomatosis of Renal Pelvis and Ureters. H.-U. Nommel.—p. 123.
Resection of Sigmoid Flexure with Murphy Button. A. W. Meyer.—p. 130.
Motor Mechanism of Stomach: Pyloric Reflex. W. Budde.—p. 136.
Gastrocolic Fistula After Gastro-Enterostomy. H. M. Hinrichsen.—p. 149.
Thrombophlebitic Splenic Tumor. F. Klages.—p. 157.
Unusual Aneurysm Formation of Common Iliac Artery Appearing Seven Years After Trauma. O. Hennig.—p. 175.
Paralysis of Sphincter Ani and Sphincter Vesicae in Disease of Douglas Pouch. O. Hennig and A. Schweizer.—p. 181.
Cystic Tumors of Pelvic Region. Brandt and F. Klages.—p. 186.
Treatment of Wounds by Acidification. W. Wagner.—p. 196.
Surgical Therapy of Frequently Recurring Dislocation of Patella. G. Brandt.—p. 204.
Surgical Elongation of Tibia at Distal End in Complete Paralysis of Foot in Children. F. Loeffler.—p. 210.

Bronze Phlegmon After Renal Operations.—Meyer describes a type of gaseous phlegmon which he has observed as a complication of renal operations and which he calls bronze phlegmon because of the large bronze-colored spots which appear near the incision. The clinical picture starts with a rise of temperature within twelve hours after operation and a slight tension and reddening visible only to the experienced eye. Within twenty-four hours, bronze spots appear 5 to 10 cm. from the incision. The patient complains of tension pains; the pulse declines. On opening the wound one finds a brownish discoloration of the musculature; it is bloodless and gas bubbles rise from it. If the wound is not opened at this time, the phlegmon develops rapidly, accompanied by a circulatory collapse, sudden anuria and intestinal paralysis; the rest nitrogen may rise to 150 mg. The author reports two cases of extirpation of the kidney and two pyelotomies performed with strict asepsis in which bronze phlegmons developed. The content of the renal pelvis was sterile in three of the cases and the catgut was sterile in all cases. The author has observed gas phlegmons only in patients with adhesions of the renal pelvis and thinks the anaerobic organism causing the infection must be latent in these perirenal adhesions. These cases show that the wound should be left open in renal operations, even simple pyelotomies, if adhesions are found. A tampon should be inserted into the wound and wire sutures applied to the deep musculature, which are not tied until after a few days. If the wound is closed at operation, careful examination must be made the same day. If there is the slightest tension or redness around the wound or a rise in temperature, examination should be repeated the next day and if any of the symptoms of gas phlegmon exist, especially bronze spots, the wound should be opened immediately.

Relation of Renal Capsules to Parenchyma.—In experimental investigations of the relation between the parenchyma, the fibrous capsule and the adipose capsule of the kidney, Orth injected dye into the renal parenchyma and capsule in thirty animals. The dye injected into the fibrous capsule remains in it and never enters the renal parenchyma but does spread toward the adipose capsule. In injection of the parenchyma, a part of the dye goes into the parenchyma and outward toward the capsule. If the injection is made deeper in the medulla, the dye also goes toward the hilus into the lymph nodes located there. A part of the dye is taken up by cells, at first mostly by leukocytes, later mostly by connective tissue cells. A certain affinity between the epithelial cells of the kidney and the abundance of cells in the inner layer of the capsule probably takes part in these procedures. From these experiments several practical conclusions may be drawn. Abscesses of the adipose capsule almost never penetrate into the renal parenchyma; the fibrous capsule in a certain sense constitutes a protective barrier. Storage of dyes takes place in the cortex, and the capsule and also passes over into the adipose capsule. This applies also to the spread of bacteria by the intravenous route. A primary suppuration of the adipose capsule with secondary participation of the kidney may exist, but the spread of suppuration from the kidney to the adipose capsule is more certain. Even the latter is not a frequent occurrence, according to the author's observations.

Continuous Drainage in Postoperative Treatment of Infected Kidney.—Mutschler thinks that continuous direct renal drainage with regular systematic irrigation of the kidney is an easier and more effective way of combating infection after operation on an infected calculous kidney than the customary method. Drainage in two directions permits a more thorough cleansing of the renal pelvis and removal of inflammatory products, which play an important part as crystallization centers for recurrent formation of calculi. In the majority of his cases, drainage was accomplished through the renal parenchyma. Mechanical cleansing was combined with an acidification therapy aimed at inhibiting the growth of bacteria by production of an acid urine. Dilute hydrochloric acid was administered locally and also orally. Irrigation, starting with 1 or 2 cc. and gradually increased to 20 cc., was given from two to three times daily. The common urinary disinfectants were also extensively used. Treatment lasted between two and three months and one and two years and was usually continued at home after the first four or six weeks. This method can be used in all cases of renal lithiasis in which conservative operation can still be carried out. The therapy is most successful in cases presenting congestion of the kidney, moderate enlargement of the renal pelvis and retention of urine. In cases of bilateral renal lithiasis, this treatment can be used on the kidney operated on first and the degree of recovery used to determine the time for the second operation. No disturbances have been noted as a result of continuous drainage. In the majority of cases a pronounced improvement of the urine and the renal function was observed. There was only one recurrence. It is too early for a final judgment of this therapy.

Deutsche medizinische Wochenschrift, Leipzig

58: 1117-1156 (July 15) 1932

Medicine and Psychology. A. Liebert.—p. 1117.
Latent Injury of Liver. H. Kalk.—p. 1119.
*Diagnosis of Perinephric Abscess. A. Vogl.—p. 1122.
*Kehrer's Sign as Symptom of Brain Tumor. R. Brennscheidt.—p. 1124.
Diagnostic Significance of Sugar in Cerebrospinal Fluid. G. Straube.—p. 1125.
Injuries of Eyes in Roentgen Therapy of Extra-Ocular Disturbances. W. Rohrschneider.—p. 1126.
Cultivation of Gonococci from Secretions That Have Been Sent In. P. Jordan.—p. 1128.
Determination of Cure of Syphilis by Means of Animal Tests with Material from Lymph Nodes. J. Hämel.—p. 1130.

Diagnosis of Perinephric Abscess.—Vogl shows that if a perinephric abscess is thought of, its diagnosis is not difficult, for in all cases of his own observation it was recognized during the first examination. The symptoms are few but characteristic. The main symptom is the deep painfulness in the renal region, which is detected by a short, firm blow on the lumbar musculature. Examination of the urine gives negative results, but fever and leukocytosis are always high. If the previous history reveals furuncles and other cutaneous suppurations, this is also a significant factor. Early diagnosis of the perinephric abscess is significant because it makes an early operative treatment possible, which in turn leads to rapid recovery. Spontaneous recovery is rare and should therefore not be relied on. In septic cases that are not quite clear, the paranephric abscess must be looked for. Since the subjective symptoms are either slight or entirely absent, localization of the abscess is difficult and usually is possible only by renal succussion. Patients in whom the abscess perforates early into the costovertebral angle or into the trigonum lumbale generally consult the surgeon on account of the visible swelling and fluctuation, but, in the great majority of cases in which the perinephric abscess becomes manifest as an indistinct febrile condition, the recognition by the practitioner is of great importance.

Kehrer's Sign in Brain Tumor.—Brennscheidt calls attention to Kehrer's sign, which, since he has watched for it, he has observed in all cases of cerebral tumor. The sign is a typical reaction of the patient to pressure on the so-called deep occipital point, which corresponds to the point of exit of the greater occipital nerve. As a result of the pressure the patient feels a severe pain at this point and, in order to escape it, he jerks his head backward and to the side, at which the pressure is exerted. In evaluating the symptom, Kehrer puts more stress on the flight movement than on the sensation of pain. The author asserts that occasionally the sign is an early symptom; that is, it is elicitable before other signs of cerebral tumor (choked disk and retardation of pulse) become manifest. A case of which the clinical history is given is noteworthy because in spite of the decompressive trepanation, and although choked disk was absent, Kehrer's sign was clearly perceptible. Following ventricular puncture it was less noticeable, and after operative removal of the tumor it disappeared entirely.

Deutsche Zeitschrift für Chirurgie, Berlin

236: 381-484 (June 23) 1932

Testing of Substances Administered to Improve Regeneration of Bones. W. Felix, N. Synodinos and M. Jasdi-Sadeh.—p. 381.
Goiter and Exophthalmic Goiter: Clinical and Experimental Investigations. E. Schneider.—p. 391.
Pathogenesis of Gastric Ulcers. L. Duschl.—p. 408.
*Postoperative Peptic Gastro-Intestinal Ulcer. L. Zukschwerdt and T. Eck.—p. 424.
Function of Stomach Operated on According to Billroth I. E. Beresow and N. Stern.—p. 465.

Postoperative Peptic Ulcer.—Zukschwerdt and Eck relate their observations in ninety-three cases of postoperative peptic ulcers. They found that roentgenoscopy and fractional withdrawal of the gastric contents make a definite diagnosis possible in nearly all cases. Perforation into adjoining organs is quite frequent, but the incidence of a colonic fistula decreases with the improvement of the diagnostic methods. The average interval between the operation and the development of the postoperative ulcer is eighteen months. On the basis of studies on the incidence of peptic ulcers after the different surgical methods, the authors give the following rules for the prophylaxis: 1. Only such surgical methods should be employed in the treatment of gastric and duodenal ulcers as effect a considerable limitation of the gastric secretion; that is, the extensive resection according to the first or second operation of Billroth. Among the ninety-three cases of peptic jejunal ulcer there were sixty-eight in which the resection would have been possible in the first operation, and thus the peptic jejunal ulcer probably could have been avoided. 2. Even ulcers that seem to be cicatrized should be resected. In two cases of this type the authors performed only a gastro-enterostomy in order to overcome the stenosis, but a peptic jejunal ulcer developed soon afterward. 3. At the anastomosis, a stenosis should by all means be prevented. For the gastro-intestinal anastomosis, the uppermost loop of the jejunum that can possibly be used should be employed. 4. All operations that result in prolongation of the chemical phase of the gastric secretion, such as exclusion of the pylorus, should be avoided. 5. If resection for exclusion is resorted to, the entire antrum and a large portion of the fundus should be removed, a procedure which the authors consider advisable only in case of duodenal ulcer: if this cannot be done, they recommend a jejunostomy as preparation for the radical operation. 6. All patients who have undergone a gastric operation should receive dietetic after-treatment and should be kept under observation for a considerable time after discharge from the hospital, so that, if a peptic jejunal ulcer should develop, it could be recognized and treated in the incipient stage, and severe complications (perforation or gastrocolic fistula) prevented.

Deutsches Archiv für klinische Medizin, Berlin

173: 123-338 (June 27) 1932. Partial Index

Acute Myeloblastic Leukemia. V. Efremow.—p. 123.
Processes of Regeneration and of Pigment Metabolism in Pernicious Anemia and in Bothriocephalus Anemia Before and After Liver Therapy. L. Heilmeyer.—p. 128.
Studies on Colloid Osmotic Pressure. E. Kylin.—p. 164.
Anoxemia in Acute Poisoning with Arsenic Hydride. F. Löning.—p. 177.
*Hyperchromic Anemia in Chronic Disorders of Pancreas. H. Brugsch.—p. 199.
*Clinical Aspects and Pathologic Anatomy of Cystic Liver. M. Blum and W. Müller.—p. 206.
Atrioventricular Automatism in Rheumatic Carditis. I. Oettinger and W. Neslin.—p. 212.
Bilirubin and Blood-Cerebrospinal Fluid Barrier. N. Klein and S. Szentmihályi.—p. 234.
Action of Spices on Secretion of Gastric Juice. W. Heupke and E. Hollander.—p. 241.
Relation of Intraventricular Conduction Disturbance to Intensity of Conduction Stimulus. S. Fehér and J. Freundlich.—p. 256.
Reduction Capacity of Sugar-Free Urines. F. Pendl.—p. 263.
Heredity of Blood Groups in Pernicious Anemia. H. Horsters and W. Krohn.—p. 271.
Coronary Infarct and Pulmonary Edema. L. Hess.—p. 283.
*Raw Diet and Heat Regulation. K. Eimer and F. Kaufmann.—p. 314.

Hyperchromic Anemia in Chronic Disorders of Pancreas.—On the basis of reports in the literature and of two cases from his own observation, Brugsch concludes that anemias, *frequently with increased color index and with increased* blood regeneration, may develop in severe, chronic pancreatic disturbances with disordered external secretion of the pancreas. The clinical aspects of these forms of anemia resemble greatly those of pernicious anemia. True pernicious anemia may likewise follow chronic disturbances of the pancreas, and there is a possibility that in these cases the disorder of the pancreas is the inciting cause. By means of special methods of examination, slight functional disturbances of the pancreas are more often demonstrable in pernicious anemia than was formerly assumed. However, the pathologico-anatomic aspects are usually not characteristic.

Clinical Aspects and Pathology of Cystic Liver.—The clinical history reported by Blum and Müller is noteworthy because of the unusually large size of the cysts. The weight of the liver, including the contents of the cysts, was 16 Kg. Another unusual aspect was the absence of disturbances in the function of the liver during a long period of observation. The gonorrheal prostatitis frequently exists, but the authors think that gonorrheal foci of a different localization are rarely detected by the complement fixation reaction. They consider it advisable to subject every gonorrhea patient who has had a prostatitis to a complement fixation test six months and twelve months after completion of the treatment; if complement fixation persists, the secretions of the adnexa should be bacteriologically examined.

Symptomless Syphilis in White Mice. — Karrenberg's extensive report presents clinical, histologic, biologic and serodiagnostic data which he obtained in studies on approximately 700 animals. In summing up his observations he states that syphilitic infection in white mice is symptomless, at least as far as it can be ascertained by macroscopic observation. Even infection with large doses does not produce manifestations of disease. However, a symptomless infection of mice is possible by various methods; the only requirements are a certain minimum dose of virus and a sufficiently long contact between the virus and the organism. A connection between the quantity of the virus and the rapidity of infection is not demonstrable. In regard to the detection of the symptomless infection, it is stated that the serodiagnostic methods are practically valueless. At the site of infection the pathogenic organisms are demonstrable for various lengths of time. By means of staining they are longer demonstrable than in the dark field. Outside of the implant it is never possible to demonstrate spirochetes either by means of staining or by the dark field method. The lymph nodes of mice show in syphilitic infection about the same changes that are found in rabbit and in human syphilis. As indicated in biologic experiments, they become involved quite early and remain a virus reservoir. Histologic examination of the lymph nodes reveals no signs indicative of a syphilitic infection; however, in many instances a nonsyphilitic intumescence of the lymphatic apparatus is observable. The spleen and liver likewise become involved quite early and remain infectious for considerable periods, but histopathologic changes are absent. Although, in syphilis of rabbits, Spirochaeta pallida does not enter the brain, this does take place in mice. Moreover, the spirochetes that enter the brain of mice may become neurotropic in that, when they are reinoculated into rabbits, they have a tendency to enter the brain of rabbits. Macroscopic and microscopic examinations of lungs and kidneys reveal no involvement of these organs.

Archiv für klinische Chirurgie, Berlin

171: 1-216 (June 22) 1932

Basis and Progress of Secretion Urography. A. von Lichtenberg.—p. 3.
Origin and Development of Chromocystoscopy. E. Joseph.—p. 29.
*Bronze Phlegmon (Gas Phlegmon) After Renal Operation. A. W. Meyer.—p. 39.
*Relation of Renal Capsules to Each Other and to Parenchyma. O. Orth.—p. 45.
Hemorrhagic Cysts of Suprarenal. G. Brandt.—p. 57.
Polyuria and Renal Insufficiency in Chronic Retention of Urine Due to Prostatic Hypertrophy. O. Hennig.—p. 66.
Posttraumatic Renal Calculi. J. Volkmann.—p. 86.
Renal Function in Acute Complete Occlusion of Ureter. H. Boeminghaus.—p. 109.
*Continuous Renal Drainage in Postoperative Treatment of Infected Calculous Kidney. R. Mutschler.—p. 116.
Papillomatosis of Renal Pelvis and Ureters. H.-U. Nommel.—p. 123.
Resection of Sigmoid Flexure with Murphy Button. A. W. Meyer.—p. 130.
Motor Mechanism of Stomach: Pyloric Reflex. W. Budde.—p. 136.
Gastrocolic Fistula After Gastro-Enterostomy. H. M. Hinrichsen.—p. 149.
Thrombophlebitic Splenic Tumor. F. Klages.—p. 157.
Unusual Aneurysm Formation of Common Iliac Artery Appearing Seven Years After Trauma. O. Hennig.—p. 175.
Paralysis of Sphincter Ani and Sphincter Vesicae in Disease of Douglas Pouch. O. Hennig and A. Schweizer.—p. 181.
Cystic Tumors of Pelvic Region. Brandt and F. Klages.—p. 186.
Treatment of Wounds by Acidification. W. Wagner.—p. 196.
Surgical Therapy of Frequently Recurring Dislocation of Patella. G. Brandt.—p. 204.
Surgical Elongation of Tibia at Distal End in Complete Paralysis of Foot in Children. F. Loeffler.—p. 210.

Bronze Phlegmon After Renal Operations. — Meyer describes a type of gaseous phlegmon which he has observed as a complication of renal operations and which he calls bronze phlegmon because of the large bronze-colored spots which appear near the incision. The clinical picture starts with a rise of temperature within twelve hours after operation and a slight tension and reddening visible only to the experienced eye. Within twenty-four hours, bronze spots appear 5 to 10 cm. from the incision. The patient complains of tension pains; the pulse declines. On opening the wound one finds a brownish discoloration of the musculature; it is bloodless and gas bubbles rise from it. If the wound is not opened at this time, the phlegmon develops rapidly, accompanied by a circulatory collapse, sudden anuria and intestinal paralysis; the rest nitrogen may rise to 150 mg. The author reports two cases of extirpation of the kidney and two pyelotomies performed with strict asepsis in which bronze phlegmons developed. The content of the renal pelvis was sterile in three of the cases and the catgut was sterile in all cases. The author has observed gas phlegmons only in patients with adhesions of the renal pelvis and thinks the anaerobic organism causing the infection must be latent in these perirenal adhesions. These cases show that the wound should be left open in renal operations, even simple pyelotomies, if adhesions are found. A tampon should be inserted into the wound and wire sutures applied to the deep musculature, which are not tied until after a few days. If the wound is closed at operation, careful examination must be made the same day. If there is the slightest tension or redness around the wound or a rise in temperature, examination should be repeated the next day and if any of the symptoms of gas phlegmon exist, especially bronze spots, the wound should be opened immediately.

Relation of Renal Capsules to Parenchyma.—In experimental investigations of the relation between the parenchyma, the fibrous capsule and the adipose capsule of the kidney, Orth injected dye into the renal parenchyma and capsule in thirty animals. The dye injected into the fibrous capsule remains in it and never enters the renal parenchyma but does spread toward the adipose capsule. In injection of the parenchyma, a part of the dye goes into the parenchyma and outward toward the capsule. If the injection is made deeper in the medulla, the dye also goes toward the hilus into the lymph nodes located there. A part of the dye is taken up by cells, at first mostly by leukocytes, later mostly by connective tissue cells. A certain affinity between the epithelial cells of the kidney and the abundance of cells in the inner layer of the capsule probably takes part in these procedures. From these experiments several practical conclusions may be drawn. Abscesses of the adipose capsule almost never penetrate into the renal parenchyma; the fibrous capsule in a certain sense constitutes a protective barrier. Storage of dyes takes place in the cortex, and the capsule and also passes over into the adipose capsule. This applies also to the spread of bacteria by the intravenous route. A primary suppuration of the adipose capsule with secondary participation of the kidney may exist, but the spread of suppuration from the kidney to the adipose capsule is more certain. Even the latter is not a frequent occurrence, according to the author's observations.

Continuous Drainage in Postoperative Treatment of Infected Kidney. — Mutschler thinks that continuous direct renal drainage with regular systematic irrigation of the kidney is an easier and more effective way of combating infection after operation on an infected calculous kidney than the customary method. Drainage in two directions permits a more thorough cleansing of the renal pelvis and removal of inflammatory products, which play an important part as crystallization centers for recurrent formation of calculi. In the majority of his cases, drainage was accomplished through the renal parenchyma. Mechanical cleansing was combined with an acidification therapy aimed at inhibiting the growth of bacteria by production of an acid urine. Dilute hydrochloric acid was administered locally and also orally. Irrigation, starting with 1 or 2 cc. and gradually increased to 20 cc., was given from two to three times daily. The common urinary disinfectants were also extensively used. Treatment lasted between two and three months and one and two years and was usually continued at home after the first four or six weeks. This method can be used in all cases of renal lithiasis in which conservative operation can still be carried out. The therapy is most successful in cases presenting congestion of the kidney, moderate enlargement of the renal pelvis and retention of urine. In cases of bilateral renal lithiasis, this treatment can be used on the kidney operated on first and the degree of recovery used to determine the time for the second operation. No disturbances have been noted as a result of continuous drainage. In the majority of cases a pronounced improvement of the urine and the renal function was observed. There was only one recurrence. It is too early for a final judgment of this therapy.

Deutsche medizinische Wochenschrift, Leipzig

58: 1117 1156 (July 15) 1932

Medicine and Psychology A Liebert —p 1117.
Latent Injury of Liver H Kalk —p 1119
*Diagnosis of Perinephric Abscess A Vogl —p 1122
*Kehrer's Sign as Symptom of Brain Tumor R Brennscheidt —p 1124
Diagnostic Significance of Sugar in Cerebrospinal Fluid G Straube —p 1125
Injuries of Eyes in Roentgen Therapy of Extra Ocular Disturbances W Rohrschneider —p 1126
Cultivation of Gonococci from Secretions That Have Been Sent In P. Jordan — p 1128
Determination of Cure of Syphilis by Means of Animal Tests with Material from Lymph Nodes J Hamel —p 1130

Diagnosis of Perinephric Abscess.—Vogl shows that if a perinephric abscess is thought of, its diagnosis is not difficult, for in all cases of his own observation it was recognized during the first examination The symptoms are few but characteristic. The main symptom is the deep painfulness in the renal region, which is detected by a short, firm blow on the lumbar musculature Examination of the urine gives negative results, but fever and leukocytosis are always high If the previous history reveals furuncles and other cutaneous suppurations, this is also a significant factor. Early diagnosis of the perinephric abscess is significant because it makes an early operative treatment possible, which in turn leads to rapid recovery. Spontaneous recovery is rare and should therefore not be relied on. In septic cases that are not quite clear, the paranephric abscess must be looked for. Since the subjective symptoms are either slight or entirely absent, localization of the abscess is difficult and usually is possible only by renal succussion. Patients in whom the abscess perforates early into the costovertebral angle or into the trigonum lumbale generally consult the surgeon on account of the visible swelling and fluctuation, but, in the great majority of cases in which the perinephric abscess becomes manifest as an indistinct febrile condition, the recognition by the practitioner is of great importance.

Kehrer's Sign in Brain Tumor.—Brennscheidt calls attention to Kehrer's sign, which, since he has watched for it, he has observed in all cases of cerebral tumor. The sign is a typical reaction of the patient to pressure on the so-called deep occipital point, which corresponds to the point of exit of the greater occipital nerve. As a result of the pressure the patient feels a severe pain at this point and, in order to escape it, he jerks his head backward and to the side, at which the pressure is exerted. In evaluating the symptom, Kehrer puts more stress on the flight movement than on the sensation of pain The author asserts that occasionally the sign is an early symptom; that is, it is elicitable before other signs of cerebral tumor (choked disk and retardation of pulse) become manifest. A case of which the clinical history is given is noteworthy because in spite of the decompressive trepanation, and although choked disk was absent, Kehrer's sign was clearly perceptible. Following ventricular puncture it was less noticeable, and after operative removal of the tumor it disappeared entirely.

Deutsche Zeitschrift für Chirurgie, Berlin

236: 381-484 (June 23) 1932

Testing of Substances Administered to Improve Regeneration of Bones. W Felix, N. Synodinos and M Jasdi Sadeh —p 381.
Goiter and Exophthalmic Goiter: Clinical and Experimental Investigations E Schneider —p 391.
Pathogenesis of Gastric Ulcers L. Duschl —p 408
*Postoperative Peptic Gastro Intestinal Ulcer L Zukschwerdt and T. Eck —p 424
Function of Stomach Operated on According to Billroth I E Beresow and N Stern —p 465.

Postoperative Peptic Ulcer.—Zukschwerdt and Eck relate their observations in ninety-three cases of postoperative peptic ulcers. They found that roentgenoscopy and fractional withdrawal of the gastric contents make a definite diagnosis possible in nearly all cases. Perforation into adjoining organs is quite frequent, but the incidence of a colonic fistula decreases with the improvement of the diagnostic methods The average interval between the operation and the development of the postoperative ulcer is eighteen months. On the basis of studies on the incidence of peptic ulcers after the different surgical methods, the authors give the following rules for the prophylaxis 1. Only such surgical methods should be employed in the treatment of gastric and duodenal ulcers as effect a considerable limitation of the gastric secretion, that is, the extensive resection according to the first or second operation of Billroth Among the ninety-three cases of peptic jejunal ulcer there were sixty-eight in which the resection would have been possible in the first operation, and thus the peptic jejunal ulcer probably could have been avoided 2 Even ulcers that seem to be cicatrized should be resected In two cases of this type the authors performed only a gastro-enterostomy in order to overcome the stenosis, but a peptic jejunal ulcer developed soon afterward. 3 At the anastomosis, a stenosis should by all means be prevented For the gastro-intestinal anastomosis, the uppermost loop of the jejunum that can possibly be used should be employed 4 All operations that result in prolongation of the chemical phase of the gastric secretion, such as exclusion of the pylorus, should be avoided. 5 If resection for exclusion is resorted to, the entire antrum and a large portion of the fundus should be removed, a procedure which the authors consider advisable only in case of duodenal ulcer; if this cannot be done, they recommend a jejunostomy as preparation for the radical operation 6. All patients who have undergone a gastric operation should receive dietetic after-treatment and should be kept under observation for a considerable time after discharge from the hospital, so that, if a peptic jejunal ulcer should develop, it could be recognized and treated in the incipient stage, and severe complications (perforation or gastrocolic fistula) prevented

Deutsches Archiv für klinische Medizin, Berlin

173: *123 338 (June 27) 1932* Partial Index

Acute Myeloblastic Leukemia V Efremov —p 123
Processes of Regeneration and of Pigment Metabolism in Pernicious Anemia and in Bothriocephalus Anemia Before and After Liver Therapy L Heilmeyer —p 128
Studies on Colloid Osmotic Pressure E Kylin —p 164
Anoxemia in Acute Poisoning with Arsenic Hydride F Löning —p 177
*Hyperchromic Anemia in Chronic Disorders of Pancreas H Brugsch —p 199
*Clinical Aspects and Pathologic Anatomy of Cystic Liver M Blum and W Muller —p 206
Atrioventricular Automatism in Rheumatic Carditis I Oettinger and W Neslin —p 212
Bilirubin and Blood Cerebrospinal Fluid Barrier A Klein and S Szentmihalyi —p 234
Action of Spices on Secretion of Gastric Juice W Heupke and E Hollander —p 241
Relation of Intraventricular Conduction Disturbance to Intensity of Conduction Stimulus S Feher and J Freundlich —p 256
Reduction Capacity of Sugar Free Urines F Pendl —p 263
Heredity of Blood Groups in Pernicious Anemia H Horsters and W Krohn —p 271
Coronary Infarct and Pulmonary Edema L Hess —p 283
*Raw Diet and Heat Regulation K Eimer and F Kaufmann —p 314

Hyperchromic Anemia in Chronic Disorders of Pancreas.—On the basis of reports in the literature and of two cases from his own observation, Brugsch concludes that anemias, frequently with increased color index and with increased blood regeneration, may develop in severe, chronic pancreatic disturbances with disordered external secretion of the pancreas. The clinical aspects of these forms of anemia resemble greatly those of pernicious anemia. True pernicious anemia may likewise follow chronic disturbances of the pancreas, and there is a possibility that in these cases the disorder of the pancreas is the inciting cause. By means of special methods of examination, slight functional disturbances of the pancreas are more often demonstrable in pernicious anemia than was formerly assumed. However, the pathologico-anatomic aspects are usually not characteristic.

Clinical Aspects and Pathology of Cystic Liver.—The clinical history reported by Blum and Muller is noteworthy because of the unusually large size of the cysts. The weight of the liver, including the contents of the cysts, was 16 Kg. Another unusual aspect was the absence of disturbances in the function of the liver during a long period of observation. The patient reached the age of 83 years, and the changes in the liver could be traced back twenty-five years. This shows to what extent the organism is capable of adjusting itself to changes in the vital organs.

Raw, Salt-Free Diet and Heat Regulation.—Eimer and Kaufmann point out that it is generally assumed that, since in perspiration not only water but also sodium chloride is eliminated, the heat regulation of human beings can be adequate only if that which is lost is quickly replaced; that is, in addition to large quantities of fluids, considerable amounts of sodium chloride have to be taken. On the other hand, a person who does not add sodium chloride to his food, that is, one who lives on a diet that is deficient in sodium chloride, is supposedly less efficient in hot weather, because he does not have the amount of perspiration that is necessary for heat regulation. Contrary observations on persons living on a salt-free, raw diet, induced the authors to make comparative tests on the heat regulation and sweat secretion of persons receiving diets with high, with normal, or with low sodium chloride content. It was found that persons who received a sodium chloride deficient, raw diet tolerate the sweating bath generally better than others. The perspiration sets in later, the skin and body temperatures do not rise so high, the quantity of perspiration is less, and its percental as well as absolute sodium chloride content is lower. The decreased sodium chloride elimination in the perspiration, like the decrease in the sodium chloride content of the urine, indicates an adaptation of the organism to the decreased sodium chloride intake. However, it may also explain the functional improvement in the heat regulation in that it accelerates the evaporation of the sweat. Other possible causes of the improved heat regulation during raw diet may be increased elimination of heat by conduction and particularly by radiation. The latter may be due to a decreased water and sodium chloride content, or to a better blood perfusion of the skin (vasomotor heat regulation). On the other hand, protein deficiency, abundant mineral content (especially potassium), and the influence of the diet on the sympathetic nervous system may also be important factors.

Klinische Wochenschrift, Berlin

11: 1129-1168 (July 2) 1932. Partial Index

Circulatory Processes in Traumatic and in Postoperative Shock. H. Schneider.—p. 1129.
Extra-Insular (Renal) Diabetes. G. Löhr.—p. 1134.
Urea Formation in Animal Organism. H. A. Krebs and K. Henseleit.—p. 1137.
*Hypoglycemia Following Experimental Roentgen Irradiation of Pancreas. A. Terbrüggen and H. Heinlein.—p. 1139.
Tests on Commercial Products for Content in Vitamins A and D. W. Heubner and K. Schübel.—p. 1142.
Intracerebral Inoculation of Monkeys with Chancroid Bacilli. W. Frei, S. Hellerström, E. Wassén and J. Wiese.—p. 1143.
*Emulsive Tendency of Serum During Gestation. H. Eufinger.—p. 1144.
Fluctuations in Size of Splenic Shadow in Roentgenoscopy by Means of Contrast Medium. S. Kadrnka and E. Martin.—p. 1147.
Experimental and Clinical Studies on Respiratory Blood Pressure Fluctuations. A. Schott.—p. 1150.
Alpha Oxidation of Fatty Acids. H. Fasold.—p. 1151.
Incidence of Sarcoma of Uterus. G. Unbehaun.—p. 1152.

Hypoglycemia Following Irradiation of Pancreas.—In experiments on rabbits, Terbrüggen and Heinlein observed that by means of roentgen irradiation of the pancreas a lethal hypoglycemia can be produced. In the excretory portion of the pancreas degeneration was noted, whereas the islands of Langerhans were well preserved or even hypertrophic. In lethal hypoglycemia the glycogen disappears completely from the liver, from the muscles and from other organs. However, if during the hypoglycemic condition large amounts of dextrose are administered, the hypoglycemic symptoms, such as convulsions, hypothermia and venous collapse, disappear, and glycogen accumulates in the liver and in the muscles. An atrophy of the fat tissues of various organs was likewise noted in the hypoglycemic condition; only Kupffer's stellate cells contained fat droplets. In the brain and in the other organs, manifestations of degeneration were absent but there was stasis in the capillaries. It is as yet not definitely decided whether in hypoglycemic conditions the reduced rapidity of the sugar metabolism influences the central nervous system directly, or whether the excessive quantities of insulin produce the central nervous symptoms indirectly by way of the vessels.

Emulsive Tendency of Serum During Gestation.—In order to find an explanation for the rapid increase in the fat tissues in certain physiologic and pathologic processes, Eufinger reasoned that in such conditions the body fluids contain substances that promote emulsification of fat with water, and that the absorption of fat mixtures with high water content by the subcutaneous tissues and by other organs is thus facilitated. He also reasoned that, in the sudden increase in fat tissues that in some women sets in during pregnancy and lactation, water retention plays an important part. He then describes tests that he made on 310 pregnant women. On the basis of these tests he concludes that with advancing pregnancy the emulsive capacity of the serum increases. This increase in the emulsive power he considers to be the result of qualitative and quantitative changes in emulsive substances, particularly in cholesterol. He also thinks that the increased emulsification capacity of the serum is perhaps one of the causes for the changes in the water economy and for the tendency to edema formation that are frequently observable in pregnant women.

Münchener medizinische Wochenschrift, Munich

79: 1061-1100 (July 1) 1932. Partial Index

Psychopathic Constitution and Its Social Evaluation. O. Bumke.—p. 1061.
Coronary Sclerosis. E. Romberg.—p. 1065.
*Deep Phlegmon of Neck. A. Krecke.—p. 1068.
Erroneous Diagnoses of Vertebral Fracture: Importance of Early Roentgenoscopy to Avoid Wrong Diagnoses. M. Lange.—p. 1076.
Roentgenologic Diagnosis of Intra-Uterine Death of Fetus. O. Brakemann.—p. 1079.
Subphrenic Abscess Following Intestinal Injury by Dull Force. E. Nagelsbach.—p. 1082.
Formation of Renal Calculi. I. Traube, K. Skumburdis and V. Goldberg.—p. 1083.

Deep Phlegmon of Neck.—Krecke sums up his discussion of the deep phlegmon of the neck as follows: 1. The deep phlegman of the neck is located in the loose tissue between the vascular sheath and the cervical organs, which is shut off externally by the taut cervical fascia. 2. It is dangerous because it may lead to suppurative mediastinitis and, by producing an edema of the glottis, may be the cause of sudden death. 3. The surest sign of deep cervical phlegmon is the board hard infiltration of the side of the neck with only slight involvement of the skin. 4. The location of the pus is indicated by the greatest sensitivity to pressure but, on account of the taut fascia, fluctuation is nearly always absent and should not be waited for. 5. Deep phlegmon of the neck should be treated by prompt opening. Electric surgery is most suitable for this purpose.

Wiener klinische Wochenschrift, Vienna

45: 833-864 (July 1) 1932

Significance of Local Anesthesia for Course of Local Laparotomy. H. Finsterer.—p. 833.
*Rare and New Forms of Leukoplakia Oris. K. Ullmann.—p. 840.
Processes in Deposition of Urinary Salts During Gout. G. Pommer.—p. 845.
Clinical Application of Freund-Kaminer's Intracutaneous Carcinoma Reaction. G. Marangos.—p. 848.
Parallergic Manifestations of Diphtheria Allergy. J. Siegl.—p. 851.
Diagnosis of Mastoiditis. G. Alexander.—p. 853.

Rare and New Forms of Leukoplakia Oris.—In enumerating rare forms of oral leukoplakia, Ullmann calls attention to those which occasionally develop after arsenic or after gold therapy and cites one case in which severe oral leukoplakia followed the therapeutic use of arsenic and of gold. He then discusses the leukoplakia that is caused by galvanic currents developing in the oral cavity as the result of the use of several kinds of metals in dental prostheses, such as amalgam fillings, gold crowns and metal clamps. The presence of two or of several metals in the acid oral secretion produces galvanic currents that are readily detectable with the micro-amperemeter. Although the currents are weak, their constant action represents a considerable irritation. Moreover, the metals gradually disintegrate and by this also irritate the oral mucous membrane. For the treatment and prevention of the changes caused by the galvanic irritation, the author recommends that amalgam fillings should be replaced by cement or porcelain and that metal clamps and prostheses should be made of the same type of gold alloy.

Zentralblatt fur Chirurgie, Leipzig

59: 1617 1664 (July 2) 1932

Evaluation of Biopsy in Bone Tumors F J Lang —p 1618
Operation in Diaphragmatic Hernia C Hammesfahr —p 1621
Vascular Anesthesia F Hartel —p 1623
Extirpation of Tumors of Paraganglion Caroticum L von Gidro —p 1624
*Gastric Tuberculosis A Pop and M Hanganutiu —p 1629
Rupture of Inner Ligamentous Apparatus of Knee Joint with Simultaneous Detachment of Meniscus W Porzelt —p 1635
Anatomic Localization of Shoulder Pain A Szubinski —p 1638

Tuberculosis of Stomach.—Pop and Hanganutiu report a case of gastric tuberculosis and discuss the difficulty of differentiating between tuberculous and malignant gastric tumors In roentgenologic examination of the patient, the stomach had the appearance of being amputated, as its horizontal portion was almost entirely lacking This amputation ended with an almost linear contour In the region of this lacunar border, a mobile resistance could be palpated The barium was retained in the stomach after seven hours On the basis of these and other clinical observations a diagnosis of pyloristenosis due to tuberculous or malignant tumor was made Pylorogastrectomy was performed Histologic examination of the resected portion of the stomach and of the perigastric tumors confirmed the tuberculous nature of the gastric picture revealed at laparotomy From this case and four others previously reported the authors conclude that there are no roentgenologic criteria for differential diagnosis of tuberculosis of the stomach and cancer of the stomach, especially malignant stenosis Tuberculosis of the stomach usually leads to tumor formation, which rapidly causes a stenosis that is curable only surgically In malignant stenosis the constriction is produced by neoplastic infiltration of the pyloric wall In this case the roentgenologic picture shows an amputation of the pylorus or a lacunar appearance of the curvatures The lacunar appearance is caused by the borders of the tumors, which have irregular outlines In tumor-like tuberculous pyloristenosis the roentgenologic picture is the same with the exception that the boundaries of the tumor have a straight outline, that is, the pylorus amputation is linear Hypersecretion is always more pronounced in tuberculous than in cancerous pyloristenosis This is because the course of tuberculous stenosis is a slow one The infiltration of the stomach in all of the authors' cases did not end with the pylorus but extended to the duodenum, transforming it entirely or in part into a rigid tube For this reason one should examine every pyloristenosis minutely, also making use of duodenoscopy A duodenum with the appearance of a rigid tube points to tuberculosis, even if the clinical picture resembles malignant stenosis, as a carcinoma never extends to the duodenum

Zentralblatt fur Gynakologie, Leipzig

56: 1681 1744 (July 9) 1932

*Roentgenogram of Descending Urinary Passages During and After Pregnancy H Jacobi —p 1682
Roentgenologic Simulation of Renal Calculus W Haase —p 1693
Aspects of Hypernephroid Tumors, So Called Aberrant Suprarenals R D Accim —p 1694
Course and Outcome of Implantation of Ureter into Intestine on Account of Puerperal Vesicovaginal Fistula H Katz —p 1698
Endometriosis of Urinary Bladder Case G Frommolt —p 1707
Id H F Eberhard —p 1712
Foreign Bodies in Bladder and Their Removal W Rosenstein —p 1715
Technic of Examination of Bladder in Complete Urethral Incontinence B Ottow —p 1719
Irreversible Changes in Mucous Membrane and in Vessels of Urinary Bladder After Gynecologic Roentgen and Radium Irradiations B Ottow —p 1722

Roentgenogram of Urinary Passages in Pregnancy.—Jacobi directs attention to the ureteral dilatation that during the second half of gestation is detectable by roentgenoscopy in nearly 80 per cent of pregnant women As the main cause of this dilatation he considers the reduced tonus of the ureter, which is a partial manifestation of the general loss in tonicity characteristic for the period of gestation Moreover, the enlarging uterus exerts pressure on the ureter and thus the ureter may even present the aspects of stasis But as proof that the uterine pressure is not the only cause of the ureteral dilatation during pregnancy, the author cites the fact that in other space limiting processes, such as in the case of large tumors, dilatation is rarely observable Pyelitis presents changes in the roentgenogram only in the most severe cases, and these pyelitic changes usually appear on the renal calices and thus they differ from the physiologic pregnancy changes The roentgenologic examination of women after confinement gives valuable information, because the ureteral dilatation that is a more or less physiologic aspect of pregnancy recedes simultaneously with the postpartal uterine involution or at least soon thereafter The pyelitic changes, however, persist for longer periods, for after weeks and even after months the roentgenogram still shows a dilatation of the ureters The conclusion that the author draws from this is that in women who have had pyelitis a new pregnancy must be prevented until all clinical and roentgenologic changes have disappeared

Jurnal Nevropatologii i Psikhiatrii, Moscow

No 4, 1 88 1931

Diencephalitis Two Cases A P Volokhov —p 11
Deficiencies of Thalamencephalon Diencephalitis M B Khait —p 16
Disturbance of Hemato Encephalitic Barrier in Typhus Fever Complicated by Meningo Encephalitis V M Domrachev and D T Kunmov —p 23
Semeiology of Ergotism Maevskii and Nikolskaya —p 29
Dementia Paralytica with Schizophrenia Case A F Neiburg —p 34
Unusual Depressive Psychosis Following Epidemic Encephalitis Case F O Kanevskaya —p 39
Fear Symptom During Chronic Stage of Epidemic Encephalitis S I Kharchenko —p 48
Value of Buscaino Urine Reaction in Diagnosis of Nervous Diseases V S Plyusnina —p 50
*Hemato Encephalitic Barrier in Schizophrenia Permeability Coefficient with Walter Hauptmann (Bromide) Method E Z Gilbo —p 53
*Prophylactic Therapy for Physical Deformities Following Acute Poliomyelitis S I Uarovoy Yakobson —p 59
Beneficial Influence of Pioneer Work with Various Types of So Called Psychopathic Children T Simson —p 69

Hemato-Encephalitic Barrier in Schizophrenia.—In the study of the hemato encephalitic barrier, Gilbo used the method of Walter-Hauptmann Within a period of six days the patient received 150 cc of a 7 per cent solution of sodium bromide On the seventh day the blood and the cerebrospinal fluid were examined The proteins were precipitated in the fluid and serum by trichloracetic acid and then to the filtrate was added several drops of a 1 per cent solution of gold chloride, which in contact with the bromine gave the solution a brownish-yellow color The bromine content was determined colorimetrically The ratio between the bromine in the blood and the spinal fluid was expressed as a coefficient of permeability Among ninety-six patients with schizophrenia examined in this way, twelve were catatonic and seven were paranoiac forms The author concludes that the hemato-encephalitic barrier in schizophrenia may be raised and lowered depending on the form of the disease In catatonic forms there is a tendency for a decrease in the coefficient of permeability (PQ) and therefore an increase in the permeability of the barrier, while in paranoiac forms the coefficient of permeability is increased During actively progressive states of schizophrenia the barrier is low, while in defective states it is high When the disturbance has a tendency to remission, the coefficient of permeability is low

Treatment of Deformities Following Poliomyelitis.—Uarovoy-Yakobson states that, in the absence of good and sufficient treatment in the presence of deformation and contracture a disturbance in the function of one or several muscle groups following acute poliomyelitis may lead to complex static and dynamic disturbances He cites eight personal observations of paralysis of the thigh muscles Insufficient and incorrect treatment may be followed by flexion, pronation and rotation contracture of the coxalgic pelvis, flexion contracture of the knee joints, genu valgum, pes valgus, or pes equinovalgus, prolapsed pelvis in a paralyzed state and bent forward, scoliosis, and lordosis of the spine, as well as marked deviation from the static and the dynamic norm The author believes that prophylactic treatment would be aided by a clearer understanding of the pathogenesis of deformation, contracture and static and dynamic disturbances Kinesitherapy may be supplemented by orthopedic surgery

No 5, 1 113, 1931

Problems in Preparing Psychiatric Personnel N N Zelenin —p 19
Darwinian Methods in Study of Neuropathology M S Skoblo —p 24
Higher Cerebral Activity and Dialetic Materialism G V Gerver —p 42
Psychohygienic Consultation as Form of Psychoprophylaxis B D Fridman —p 50

Statistical Study of Epilepsy in Colonies and in Psychiatric Institutions of U. S. S. R. L. A. Prozorov.—p. 53.
Necessity for Study of War-Time Neurology. D. Futer.—p. 57.
Genetics and Hereditary Aspect of Neuropathology. S. N. Davidenkov.—p. 60.
*Clinical Aspect and Therapy in Neurogenous Form of Muscular Atrophy of Charcot-Marie. A. S. Pomerantsev.—p. 73.
Pathogenesis and Pathologic Anatomy of Multiple Sclerosis of Brain and Spinal Cord (Charcot's Disease): Case. V. V. Mikheev and N. I. Propper.—p. 81.
Functional Influence of Kidneys in Mental and Nervous Diseases. N. P. Volokhov.—p. 90.
Relationship Between Sensitivogalvanic and Psychogalvanic Reactions and Potassium and Calcium Contents of Blood: Part Played by Sympathetic and Parasympathetic Nervous Systems. I. K. Zyuzin.—p. 94.
Difficulty in Differentiating Epilepsy from a Purely Mental Disturbance: Case. I. N. Vvedenskiy.—p. 101.
Introduction to the Problem of Juridicopsychiatric Determination of Deviation from Sanity. A. N. *Buneev.—p. 104.*
Pathogenesis and Therapy in Multiple Sclerosis. V. V. Mikheev.—p. 109.

Neurogenous Form of Muscular Atrophy of Charcot-Marie.—Pomerantsev reports six personal observations of patients with a typical clinical picture of Charcot-Marie and with neurogenous atrophy of muscles. Some authors believe that the chief etiologic factor of this disease is an hereditary degeneration. Three of the patients were brothers, who reported that the disease had also affected a fourth brother; all were from 28 to 33 years of age. One patient was the daughter of first cousins (the author suggests a recessive factor of inheritance); another inherited the disease from her mother, while the sixth patient reported that this disease was an hereditary characteristic of many of the male members of the family. All the patients had articular disturbances which began in the peroneal group of muscles. Disturbances in reflex action depended on the severity of the articular insufficiency. Fibrillation was present in one instance, while vibration and deep sensation were other striking symptoms. There was a disturbance in the sympathetic nervous system and there were also changes in reaction of degeneration, which serve to distinguish myopathic from neuromyelopathic forms. The course of the disease was slow and did not prevent the patients from working. The treatment was the same as that incorporated in chronic degenerative polyneuritis; namely, complete rest in bed, baths, massage, individual gymnastics, rhythmic faradization and Bergonié's treatment.

Hospitalstidende, Copenhagen

75: *717-744 (May 26) 1932*

Three Cases of *Pigmentation* Anomalies of Nervous Origin. M. Ellermann and G. E. Schrøder.—p. 717.
*Results of Inguinal *Herniotomy* in Men. P. Nordentoft.—p. 731.
Treatment of Fracture of Condyle of Tibia. O. Kapel.—p. 737.
Case of Initial Filtrate with Transient Ring Shadow in Roentgen Picture. *K. Andersen.—p. 741.*

Results of Inguinal Herniotomy in Men.—Nordentoft's after-examinations from six months to nine years after operation in 449 cases of "typical" herniotomy show recurrence in 4.5 per cent; in the 358 cases of indirect hernia, recurrence appeared in 3.6 per cent, in the 91 with direct hernia, 7.7 per cent. The fewest recurrences were seen in the youngest age-group (from 15 to 30 years), otherwise the frequency of recurrence did not depend on age. Of the total 512 patients operated on, the mortality was 11, or 2.1 per cent; no deaths occurred after bilateral herniotomy, done in one sitting in 68 cases.

Hygiea, Stockholm

94: 449-496 (June 30) 1932

*Peptic Ulcers in Meckel's Diverticulum. H. Wulff.—p. 449.
*Treatment of Gastric Ulcer and Duodenal Ulcer in First Medical Clinic. I. Holmgren.—p. 458.
Origin and Localization of Traumatic Rupture of Bladder in Connection with Observed Case. A. B. Sjövall.—p. 467.

Peptic Ulcers in Meckel's Diverticulum.—Wulff tabulates forty-two microscopically verified cases (including one personal case) of ulcers in Meckel's diverticulum lined with gastric mucous membrane. The condition, he says, occurs almost exclusively in children and younger persons and usually in males. Hemorrhages by the rectum, frequently marked, not infrequently a clear red, are the most common and often the only symptom in the history in ulcers in Meckel's diverticulum. In only two of the cases was diagnosis made before operation. With ulcers in this localization, roentgen examination does not seem to be of great value in diagnosis.

Treatment of Gastric Ulcer.—Instead of the hypoalimentation treatment of simple ulcers, Holmgren uses a suralimentation method. He has found that hemorrhages from ulcers which do not yield to the usual dietetic treatment cease on a more liberal diet; that the ulcer symptoms disappear as rapidly as they do on a stricter regimen, which was also the case with the roentgenologic niches, and that the time of convalescence is notably shortened.

Ugeskrift for Læger, Copenhagen

94: *601-636 (June 16) 1932*

*Orbital Phlegmons. J. Møller.—p. 601.
Determinations of Hemoglobin and Standardization of Hemometers. E. Lange.—p. 606.
Blood Types in Forensic Work in Medicolegal Institute: Review. K. Sand.—p. 610.
**Status of Problem in Application of Human Blood Types in Paternity* Cases. O. Thomsen.—p. 615.

Orbital Phlegmons.—Møller reviews the diagnosis and treatment of orbital complications in sinus disorders, using the term orbital phlegmons as a convenient group designation without the involvement of orbital phlegmons in the stricter sense in all cases. Of the seven grave cases reported, the first, while presenting the same picture of edema of the eyelids as the others, resulted from a thrombosis of the cavernous sinus. The six cases were due to sinus disease that gave symptoms of an orbital phlegmon, three also with endocranial disorders which caused death. These cases represent the various complications which, according to the author, may be expected—subperiosteal abscess in the orbit, diffuse phlegmon without the formation of abscesses, optic neuritis and other endophthalmic changes, meningitis, and brain abscess, together with more superficial gravitation abscesses.

Human Blood Types in Paternity Cases.—Thomsen states that the distinction between the two modifications of type A (A_1 and A_2) is necessary because in certain instances it allows the exclusion of a paternity which cannot be excluded if A is considered as an undivided entity. Since the A_1 factor dominates over the A_2, the latter may be hidden by A_1, while A_1 can never be hidden by A_2. In all cases in which the exclusion of paternity may depend on a latent A_2 receptor, such cases constituting about 6 per cent of all "blood type cases," the results must be accorded definitely less value than when the more stable A_1 and B receptors are concerned.

94: 661-680 (June 30) 1932

*Silicosis in Seventy-Eight Workers Exposed to Dust of Stone. S. V. Gudjonsson.—p. 661.

Silicosis in Seventy-Eight Workers in Stone.—Gudjonsson's examinations were made in persons employed in work with stone for from over two to over twenty-five years. Of the forty with silicosis, twenty-five had second stage silicosis. The origin of silicosis seems to depend directly on the length of employment, not on age. The total morbidity, particularly from pulmonary disease, has increased during recent years among the workers affected. Signs of pulmonary tuberculosis were found in four.

94: *681-704 (July 7) 1932*

*Significance to Be Attached to Three Types of Tubercle Bacilli (Human, Bovine and Gallinaceous) as Cause of Tuberculosis in Man in Denmark. K. A. Jensen.—p. 681.
Sporadic Goiter of Genotypical Origin and Relation to Other Thyroid *Disorders. C'td. J. Bing.—p. 688.*

Three Types of Tubercle Bacilli.—Jensen says that the avian type of tubercle bacillus is of little significance as a cause of characteristic tuberculosis in man. Type determinations of forty strains in pure culture from various tuberculous conditions show that the majority of cases of pulmonary tuberculosis and of surgical tuberculosis, except tuberculosis of the lymph nodes of the neck and urogenital tuberculosis, are caused by bacilli of the human type and that most cases of tuberculosis of the lymph nodes of the neck are due to bacilli of the bovine type, as are also 19 per cent of the cases of urogenital tuberculosis, likewise 24 per cent of the cases of tuberculous meningitis (in children under 5 more than 50 per cent). Infection with the human type of tubercle bacilli seems to occur from man to man, open pulmonary tuberculosis being the preponderating source of infection; infection with the bovine type occurs almost exclusively from cattle to man, milk being the most active source of infection.

[illegible]